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# THE CONDOR

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# THE CONDOR

## JOURNAL OF THE COOPER ORNITHOLOGICAL CLUB

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## CONTENTS

	PAGE
Migration and Nesting of Nighthawks in Northern Idaho.....	Henry Judson Rust 177
Geographic Variations of the Black-bellied, Fulvous, and White-faced Tree Ducks.....	Herbert Friedmann 189
Eye-color in the Green Jay.....	George Miksch Sutton 196
Taxonomy and Distribution of the Mexican Sparrow <i>Xenospiza baileyi</i> .....	Frank A. Pitelka 199
Observations on Bird Life in the Pacific Ocean off the North American Shores.....	Charles F. Yocum 204
FROM FIELD AND STUDY	
Towhee Helps Cardinals Feed Their Fledglings.....	Ada Antevs 209
Black and Mottled Ducks in Colorado.....	Alfred M. Bailey 209
Duck Hawk Predation upon Ring-necked Pheasants.....	Gordon W. Gullion 209
An Unrecorded Specimen of <i>Neochloe brevipennis</i> .....	Erwin Stresemann 210
The Black Vulture and the Caracara as Vegetarians.....	Fr. Haverschmidt 210
Zone-tailed Hawk Feeds on Rock Squirrel.....	Clarence Cottam 210
Notes on the Occurrence of Birds in Lower California.....	Karl W. Kenyon 210
Concentrated Nesting of Marsh Hawks.....	Edward M. Hall 211
Another Outbreak of Fungus Disease in Gulls.....	Carleton M. Herman and Merton M. Rosen 212
Water-surface Feeding of Blackbirds.....	Frank Richardson 212
The Black Phoebe in Western Oregon.....	Fred G. Evenden, Jr., Philip C. Dumas, and Kenneth L. Gordon 212
The Vermillion Flycatcher in the Central Mohave Desert.....	Edmund C. Jaeger 213
Yellow-billed Magpies' Reaction to Poison.....	Ira L. Wiggins 213
NOTES AND NEWS.....	214
COOPER CLUB MEETINGS.....	214

# THE CONDOR

VOLUME 49

SEPTEMBER-OCTOBER, 1947

NUMBER 5

## MIGRATION AND NESTING OF NIGHTHAWKS IN NORTHERN IDAHO

By HENRY JUDSON RUST

Observations on the Pacific Nighthawk (*Chordeiles minor hesperis*) have been made by the writer at or near the city of Coeur d'Alene, Idaho, for the past 36 years. The size of the area where nesting was watched is approximately 36 square miles, and it lies at elevations of from 2200 to 2600 feet. The area where practically all of the data on migration were recorded is a rectangle 1200 feet wide by 2400 feet long in a portion of the business and residential section of the city.

*Spring arrival.*—In 1911, when I began keeping annual records of the arrival and departure of the Pacific Nighthawk, I expected to find considerable yearly variations in these two occurrences. Such has not proved to be true. The first noted arrivals of the spring migrants were recorded as follows: May 29 to June 3, inclusive, eight seasons or 22 per cent of the total observations; June 4 to June 10, inclusive, 24 seasons or 67 per cent; and June 13 to June 18, inclusive, 4 seasons or 11 per cent. These records show a range of 20 days, with 89 per cent occurring within a period of 13 days, May 29 to June 10, and with a general average around June 9. In view of the long distance these birds travel from their wintering locations in Central and South America to reach their breeding range and the difficulties of securing sufficient food and of passing storms on their spring migration journey, it seems remarkable that so many are able to return year after year to the same nesting sites and not show greater variations in arriving than has been recorded.

My experience has been that the females arrive from one or two days to possibly a week in advance of the males. The first arrivals of the males can be determined by their rapid flight over the area and their constant call of *be-erd* or *bay-ard*, as it seems to sound from a distance in the air. The first presence of females on the area can only be satisfactorily determined by many miles of tramping over the low foothills, gravelly flats and pasture land which they are known to select as preferred nesting sites and where one may occasionally flush a female from her roost on the ground. Such encounters constitute with one exception the earliest arrival records of females for the last week in May. Only one record was secured of the spring arrival of either males or females in groups of more than three in number. This was a short observation at 6:50 p.m. on the evening of June 4, 1942, at which time a group of seven females in close formation were flying rapidly 150 feet above the ground. They passed over the observation area in a northwesterly direction. The presence of either sex becomes more noticeable when the evening feeding period begins in early June.

*Nesting.*—The mating period starts shortly after the arrival of the males and the duration of the activity depends on the time of arrival and the proportion of the sexes. A shortage of females often appears as evinced by the continued calling of one or several males during the evening feeding period and occasionally during the night and at the

break of day. As the season advances and males fail to find mates, the call notes become much harsher and often are uttered at intervals of three seconds repeated ten to fifteen times. The female invariably selects the nesting area, which before the eggs are laid may be from one-half to one acre in extent. These areas are situated in the low foothills or the extreme ends of the lower ridges or benches in openings not far from trees. Sites on low flats or pasture land free from dense grass or thick weed beds are also selected. When mated, the male selects a roost in a near-by tree.

After some years of experience trying to locate the selected nesting sites by walking back and forth over suitable areas and keeping a close watch for a short flight of a female from the ground, I found that by observing various possible nesting sites in the evening



Fig. 29. Low bench land overlooking Coeur d'Alene Lake. Nesting area of Nighthawks.

I could locate those selected by watching the male nighthawk dive and boom over them. Almost invariably I was able to flush the female from some portion of the area thus pointed out. Once located, continued daily visits were necessary to secure information on egg laying. In one instance after a number of dives by the male over a certain area, I finally located the female which had apparently been dead for several days as most of the flesh had been eaten from the body either by ants or some small mammal. On another occasion after watching a number of dives I was unable to locate any female. During the evening feeding period many observations were made of males making long or short dives in the direction of possible females, but distances were then too great to be certain of the location of nest areas.



The egg-laying period was found to extend from the middle of June until the middle of July. Unusually late dates could have been caused by late spring arrivals or by the destruction of the first set of eggs. Of 24 sets of two eggs and three sets of one egg each



Fig. 30. Female Pacific Nighthawk incubating.



Fig. 31. Nighthawk eggs in nest site in open cultivated land.

of which a record was kept, the dates varied from June 16 to July 15, the average being June 30. Of five sets for which I was able to record the exact dates of egg laying, three sets showed a lapse of one day between the laying of the eggs and two sets showed a lapse

of two days. With reference to the proximity of nests, four sets of eggs or nests were found in one pasture of twenty acres; two sets were found on a low ridge 210 yards apart and two nests were found on a low hillside 52 yards apart. These are the closest nestings of which I have record.



Fig. 32. Female nighthawk walking up to cover single egg. The egg had been moved somewhat as the female flushed earlier.



Fig. 33. Young nighthawk less than one hour old, with down still wet.

Measurements of sixteen sets of two eggs each gave a range of  $19 \times 29$  and  $20 \times 30$  to  $22 \times 32$  and  $23 \times 34$  mm., with an average of  $21.6 \times 30.7$  and  $22.2 \times 31.6$  mm. Three sets of one egg each gave a range of  $19 \times 30$  and  $22 \times 32$  mm., with an average of  $21 \times 31$

mm. Measurements of two sets of two eggs each of the smaller eggs showed no significant difference between members of the set in size. They may have produced females as the larger eggs were found to give rise to males.

Before any eggs are laid, the female when disturbed rises a short distance and flies a few yards and alights on the ground. After one or both eggs are laid, she rises just above the ground, with the body nearly vertical and the tail spread and almost dragging, and flaps slowly away for a distance of five or six yards. She then settles down on the ground and if slowly followed will at times offer the only sign of resistance ever noted in the female nighthawk. The wings are fully extended on the ground with the tips of the primaries pointing forward and with the mouth fully opened. A hissing sound is given and the inner lining of the mouth shows bright red, probably from an increased amount of blood reaching this lining, which when normal appears white, particularly at night. When these slight evidences of resistance are not shown, the female will at times simulate crippling by fluttering the wings on the ground. If closely followed she begins to take short flights and alights on the ground or on a boulder or old log if present. When all signs of danger are past, the female will readily return and cover the eggs.

Incubation was found generally to last eighteen days; there were a few instances of nineteen days. All my observations tended to show that incubation was performed entirely by the female and that the eggs were never moved from the slight nest depression.

*Young.*—The young can be heard peeping a few hours prior to hatching. The empty shells are carried a short distance away by the female. The newly hatched young are covered with a light colored down. Their eyes are open when newly hatched and when considerably disturbed, the young will move about quite rapidly. When three or four days old they raise their small wings and run over the ground almost as fast as the female. When disturbed while brooding, the female will fly a few yards near the ground, then alight and give a few low clucks such as given by domestic hens. The young readily respond and if disturbed no further will follow after and move under the female's wings. If continually disturbed, the female will draw the young away for a considerable distance.

The following example is given of a portion of the early life of a pair of young nighthawks at a site on the south slope of a small open wooded hill 300 feet high. On July 14 the first egg was laid; on July 15, the second egg. The first young hatched from the smaller of the two eggs on August 2. On August 3 the young bird in the remaining egg could be heard peeping and pecking away at the shell, and it hatched late on the same day. The first young to hatch was measured on August 3 and had a total length of 48 mm. The second young was measured on August 4 and was 55 mm. in total length; this one proved to be the male. On August 4 at midday the female was brooding and facing north with wings spread over the young which were both facing northeast. On August 5 at 11 a.m. the female was brooding and facing south, and she flushed when I approached to within eight feet. The young male was on the right side facing north, the female on the left side facing south. Measurement of the young at this time were: total length of female 55 mm.; male, 63 mm.

On August 9 the two young were found eight feet east of their original location and in some shade provided by a small pine tree. Both young were lying flat, side by side, and facing east. The primary sheaths were now 10 mm. in length. The female measured 70 mm. and the male 79 mm. in total length. While I was measuring the young, the female flew close and uttered a shrill call—*quirk, quirk*—keeping closer to the young than on any previous visit. On August 12 the young nighthawks were 52 feet from their original location. The young were side by side and facing west. The female now measured 80 mm. and the male 94 mm. in total length. The wing sheaths now measured

13 mm. and the tail 11 mm. The mother remained at a distance of about twenty feet and fluttered her wings to attract me away from the young. On my next visit a few days later I was unable to locate the young nor the parent female and they were not seen



Fig. 34. Young nighthawks with sheaths of wing feathers beginning to show peripherally. Female at left, male at right; note difference in size.

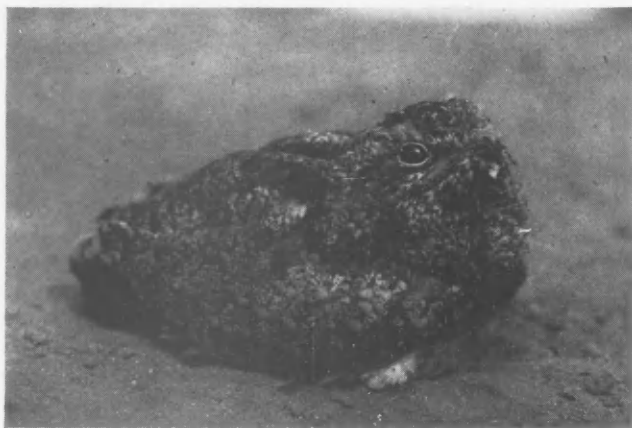


Fig. 35. Young female nighthawk 14 days old.

again. Development and measurements of other young which were handled gave a total length of 130 mm. for females and 141 mm. for males at the age of 14 days and 172 mm. for females and 184 mm. for males at the age of 30 days.

Young nighthawks at the age of 16 days start to raise their wings and hop up six or more inches from the ground; this is the first indication of the beginning of flight. At

the age of 18 days they are able to fly short distances and can fly well at the age of 25 to 30 days, although the primaries are not yet fully developed. From 45 to 55 days are required for full development. I have observed females remaining with their young until they were able to fly considerable distances and have flushed nearly full grown young from their roosts on the ground where they were resting during the daytime side by side, but with no parent bird in evidence.

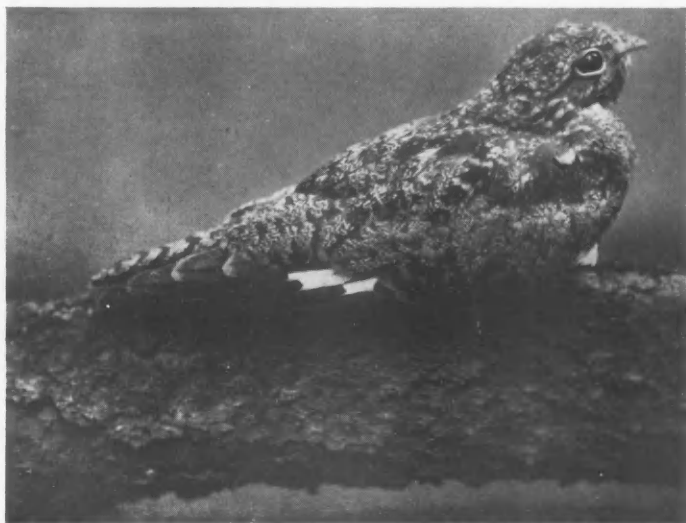


Fig. 36. Female nighthawk 31 days old. This bird could fly although the wing and tail feathers were not fully developed. Shows typical horizontal perching position on limb.

*Food.*—Stomach analyses of 11 nighthawks collected in northern Idaho as determined by the United States Fish and Wildlife Service showed the contents of 75 per cent of the total number submitted for examination to be composed of 100 per cent animal matter. The remaining 25 per cent varied from 60 to 90 per cent animal matter, with vegetable matter and gravel making up the difference. The animal matter consisted entirely of numerous species of insects and the vegetable material consisted of plant fragments, small bits of wood and various seeds. Insect life as well as plant development, on which many of the insects depend for food, is closely correlated with the weather conditions. Insects in the region under consideration show little activity when maximum daily temperatures are under 70° F. Temperatures of this order are usually attained by the time of arrival of the first migrant nighthawks. In examining the temperatures shown on the chart for the spring migration (fig. 37), it will be seen that in the 36 seasons that observations were recorded there were but six instances when the arrival of the first nighthawks occurred when the maximum was under 70° F. and in these instances increased temperatures were reached a day or so later.

The area over which the study was conducted consists of part of a large strip of open agricultural land lying between low hills and extensive forests. A considerable portion, from 50 to 75 per cent, of the insects taken by the nighthawks during July consisted of

various beetles, order Coleoptera. Many of these were of good size and were species that are commonly known as flat- and round-headed woodborers that develop in decaying trees, stumps or old logs. The balance was composed of soft-bodied species of different orders. The flight habits of many of the western species of insects are little known and much of the available information has been obtained from stomach analyses of various species of insectivorous birds, particularly the nighthawks. All during the sum-

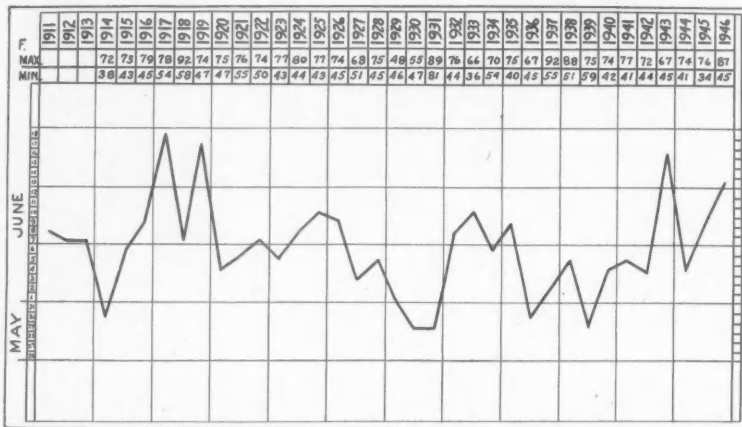


Fig. 37. Dates of spring arrivals of Nighthawks in Coeur d'Alene area, Idaho.

mer and early fall various flights of insects take place. The elevation and direction is governed to a great extent by air temperatures and prevailing air currents. For example, the numerous species of ants soar in the air on their nuptial flights in immense numbers making great feasts for the nighthawks when thus encountered. After losing their wings they become established in colonies on the ground and furnish food for the nighthawks during stormy weather later in the season. Several species of western grasshoppers reach maturity during the warmest part of the summer and can be found in large numbers on the ground until the heavy frosts occur. These constitute at times during stormy weather in September and early October the entire food of nighthawks that remain late. They are taken by ground feeding.

In June when the evening feeding period gets under way around 6:45 p.m., the male nighthawks in the vicinity of the incubating females begin to call from their roosts in near-by trees. Soon they take wing and begin circling over their respective nesting sites, where they execute from three to six or more dives (see Miller, Condor, 27, 1925: 141-143). After the dives are over, the males wing their way out over the feeding areas. Continued observation showed that birds from certain nesting sites could be seen coming from a regular direction each evening up to the time of migration. The gathering of the nighthawks from the various nesting locations from all directions for the evening feeding was found to be remarkably regular, although changing in time with the shortening of the days from June to early October. The fact that they are gregarious feeders would have a tendency to induce this regularity which was most noticeable with the males, as they were usually the first to appear over the feeding area under observation.

The periods when the greatest number of nighthawks were observed were, for June, 6:45 to 8:00 p.m.; July, 7:10 to 8:30 p.m.; August, 5:50 to 7:30 p.m.; September, 5:15 to 6:30 p.m.; October, 5:00 to 5:45 p.m. Records taken over a number of years show that the greatest per cent of the minimum temperatures in the Coeur d'Alene region occur between 4 and 6 a.m., the lowest reading usually occurring at or quite near 5 a.m., Pacific standard time. I have never observed the nighthawks feeding in the air at this period of the day over the Coeur d'Alene area. The only daytime feeding recorded was on occasion when a severe rain storm had prevented the regular evening feeding; on the following day, if the storm had ceased, feeding would occur any time from 10 a.m.



Fig. 38. Gullet contents of a male nighthawk taken over open pasture land on July 21, 1920. Note large proportion of beetles.

to 3 p.m., often in company with Violet-green Swallows. Feeding would be resumed again in the evening, weather permitting.

Shortly after the males leave for feeding, they are followed by the incubating females, which leave their eggs for a brief period and join the feeding group. A record of a visit to one nesting site during the evening follows. On July 24, 1919, I arrived at a nesting site on the east slope of Tubb's Hill at 5 p.m.; a thermometer carried on the trip registered 90° F. The female was spread out quite flat covering the eggs. At 6 p.m. the temperature had dropped two degrees and the rays from the sun had just passed, leaving the occupied portion of the site in the shade. At 6:35 p.m. the male began calling *bay-ard* from his roost in a near-by tree and was soon answered by other males. The temperature now had dropped to 80° F. At 6:55 three male nighthawks were observed circling close together and flying rapidly, repeatedly calling, seemingly as if the parent male were driving away the other males from his nesting site. At 7:30 the temperature had dropped to 72°. The female was still covering the eggs and only the parent male was now circling over the site. At 7:42 the female arose suddenly from the eggs, circled low and then flew away in the direction of the feeding area. I now felt sure that the male was aware of my presence, as he began diving and circling close to where I was trying to hide. At 8:11 the female returned over the site and at 8:22 settled down near the eggs, having been absent forty minutes. The temperature was still at 72° and it was growing quite dark.



I now came out of my hiding place among some bushes as I felt sure both parent birds were aware of my presence. I started to return down the hillside and was closely followed by the male and female circling just over my head, the male continually calling and making some dives very close. There was nothing in these observations that gave me any clue as to the time nighthawks depart to feed other than perhaps the approach of the evening shadows.

In all the years of study I have been unable to observe the feeding of the young by the parent birds. Numerous methods were tried but it was found that the nighthawks were very suspicious after dark, their eyesight at night being remarkably keen as shown by their ability to locate their eggs or more particularly the young when it would be impossible for a human observer to see them even at a very short distance. I even tried hobbling the young to prevent them from moving away in answer to the clucking call of the mother. This resulted in a close-up view of the female trying to protect the young by coming to them and covering them with her outspread wings. The male parent came to the group while the young were thus under cover and permitted a close enough approach for me to observe that no attempt was made to feed them, although it was thought that such was his intention. It was at this time that I heard the male utter a peculiar deep, low call, *aud-aud-aud*, closely resembling a sound of a frog. An interesting account of the feeding of young Pacific Nighthawks by both parent birds on a high flat roof was published by Bowles (Auk, 38, 1921:203-216).

*Flight.*—The first flight habit to be observed in early summer is that of the migrating males as they travel over the area at moderate heights in a fast irregular manner, continually calling and seemingly having no particular course to follow. This method of flight usually extends over much of the early mating period and in males that fail to mate, it is continued throughout the summer.

The flight of mated males to the feeding area is fairly rapid and direct, and they reach their regular feeding range at heights of four to five hundred feet above the ground. They then begin flying in large circles and gradually descend to lower levels until they encounter insects in flight and then begin feeding. If a large swarm of insects is found, all the nighthawks present over the area will concentrate in a close group and move in small circles in a rather slow flight with considerable flapping of wings, at times darting to the right or left or straight up in the air. The females soon join the males and feeding is continued until they are satisfied or consume the insect life present over the area. When insufficient food has been obtained in the air, they will do some feeding on the ground or in the vicinity of their nesting sites.

As soon as the young nighthawks are able to fly well, they begin to appear among the adult birds at feeding time and can be readily recognized by their darker colored plumage and short irregular flight. At certain times in the summer, from July 17 to August 22, the young congregate in a large flock in fairly close formation and exercise and feed just above the ground, darting up to 20 or 30 feet in the air and then down again. This flight is continued for 15 or 20 minutes and then the young rise and mingle with the adults.

The adults also have a group flight in which they engage several evenings before the migration flight. This gathering is somewhat similar to that of the young but at much greater heights. All the adults feeding over the area at the time gather in a close formation, spaced eight to ten feet apart vertically and horizontally. They then begin to make short vertical flights. This flight is continued for ten to fifteen minutes at each gathering and was observed on four different evenings between August 15 and 22, twenty times between August 23 and 31, and six times between September 1 and 12 in the 36 seasons of observation.



*Fall migration.*—The autumnal migration gathering and flight is one of the most interesting habits observed in the study of the Pacific Nighthawk and the one that required the most concentration during the evening observations. The first migratory movement was found to occur in the month of August, ranging from the 15th to the 31st. This event was observed three times between August 15 and 20, seven times between the 21st and 25th, and fourteen times between the 26th and 31st, in all, 24 times in 36 years. In twelve seasons no August migrations were recorded, those seen occurring in the month of September. For ten seasons no September migration was observed except the depar-

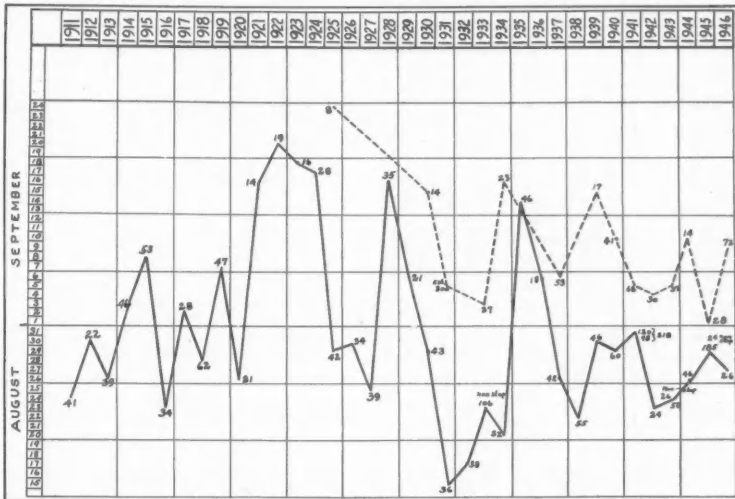


Fig. 39. Dates and numbers of Nighthawks engaged in fall migration flights in Coeur d'Alene area. Solid line indicates adults and early young; broken line, later migrations, chiefly of young. Numbers include local birds and those passing through.

ture of the young late in the season. In fourteen seasons migrations were seen both in August and September as shown on the migration chart, figure 39.

In the 24 August migrations a total of 912 local birds, or an average of 38 per flock, and an estimate of 461 outside migrants winged their way out of the observation area, apparently started on their long journey to their winter feeding grounds. In September a total of 803 local birds with an average of 31 per flock, 300 outside migrants and an average of three late developing young were observed in the course of the study. All the local nighthawks in these flocks were believed to have come from an area of approximately nine square miles, the other migrants coming from a considerable distance.

On several occasions the local birds were going through their migration gathering practice when a large flock of travelling migrants came in over the area from the east. The latter then immediately joined with the local birds and continued with the maneuvers for a few minutes, whereupon the arrangement for the travelling flight was carried out. This consisted of a large horizontal rectangle of birds, eight to ten birds wide and fifteen to twenty long, with a space of approximately two square feet for each nighthawk. This is the spacing as I have judged it from observing several large rectangular migrating flocks at fairly close range passing directly over my head. When gathering gets

under way, the flight is quite rapid with the wing beats appearing in unison. There seems to be no leader. When the group starts to move on, it takes a direct course west, having come in from the east.

An interesting feature of these migration gatherings is that not all the local birds that take part in the migration maneuvers are included in the migration group. This can

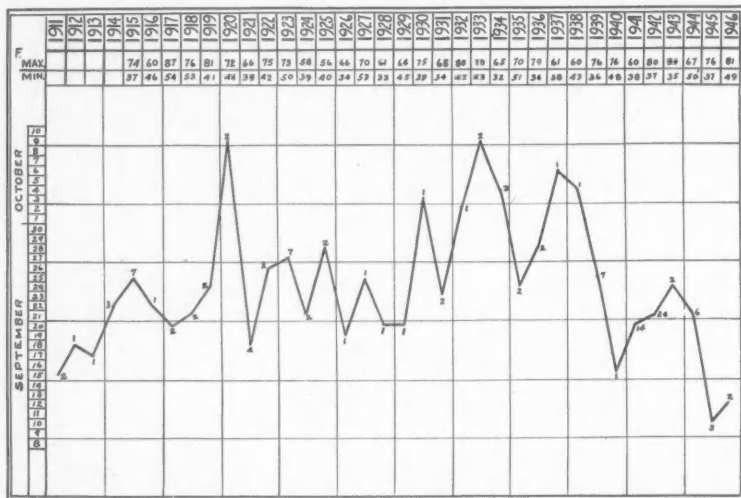


Fig. 40. Dates and numbers involved in final appearance of Nighthawks in Coeur d'Alene area in autumn.

be determined after the large flock moves on its way, as there are usually from three to seven individuals left and these keep on feeding and make no attempt to follow the departing group. These remaining nighthawks presumably are the ones to be noted on the final migration flight (fig. 40). Their departure late in September or early October is difficult to observe as in many seasons there were just one or two individuals involved, the largest numbers recorded being 14 and 24. Final departure can only be ascertained for certain after absence is noticed for at least a week or ten days; little feeding in the air is done at these times owing to long spells of cool, stormy weather.

In seven seasons from one to three remained until as late as October 9, at which time there might be snow on some of the foothills and temperatures might be down to freezing. Just what becomes of many of these stragglers it is hard to say. It would seem that it would be difficult for them to reach their wintering range alone, as they appeared to be young birds chiefly. In order to secure some information as to this delay, I collected three specimens on September 26. Two which were roosting near together on the ground proved to be an adult female and a young female, probably a mother and her young; the other specimen proved to be a young female. The adult female showed no defects which would cause her to remain, but the young with her lacked an inch in full primary wing development. Both were fat and their stomach contents showed an exclusive diet of grasshoppers. The other young female also lacked full wing development and was in poor physical condition.

*Coeur d'Alene, Idaho, February 25, 1947.*

# GEOGRAPHIC VARIATIONS OF THE BLACK-BELLIED, FULVOUS, AND WHITE-FACED TREE-DUCKS

By HERBERT FRIEDMANN

The Black-bellied Tree-duck, *Dendrocygna autumnalis*, has two currently recognized subspecies, but the situation as thereby expressed is not in accord with what a study of a good series of specimens and of the literature reveals. It seems to me that the name *autumnalis* has been consistently misapplied to a group of birds that agree neither in appearance nor in geography with the original basis on which this name was formally introduced into scientific nomenclature, and that the birds currently called by this name are actually a composite of two forms, both of which require new names.

*Anas autumnalis* Linnaeus (Syst. Nat., ed. 10, 1, 1758:127) is based entirely on Edwards (Nat. Hist. Birds, 1751, p. and pl. 194) who definitely states that the specimen he figures "... was brought from the West Indies ...". In his description, and to a lesser extent in his plate, he shows that "... the whole belly and thighs are black, but where the red on the breast, and the black on the belly unite, these blended colours form a dusky ash colour ...". West Indian specimens appear to be rare in collections, but I have examined an adult female from Añasco, Puerto Rico, in the United States National Museum, and it upholds Edwards' description in most specifications. Birds from northern Colombia, from the Rio Atrato east to Santa Marta and to the Rio Cogollo, Perija, western Venezuela, and from eastern Panamá (Perme, Veraguas, and Chiriquí, and Darién) agree with this Puerto Rican example. Todd and Carriker (Birds of Santa Marta, 1922:140-141) note that their specimens from Fundación and Tierra Nueva, Santa Marta, Colombia, were more rufescent on the breast than examples from farther east in South America, but they nevertheless call their birds *D. a. discolor*.

Danforth (Jour. Dept. Agri. Puerto Rico, 15, 1931:44) considers the Black-bellied Tree-Duck the commonest of the tree-ducks in Puerto Rico, but he did not collect any specimens. Wetmore (Auk, 65, 1938:53) in recording some bones of this duck from Puerto Rico, writes that "... this species has been found only in small numbers in modern times in the island." However, Bond (Check-list of Birds of the West Indies, 1945:14) informs us that *D. a. autumnalis* has been recorded from Jamaica (by Gosse) and was introduced in 1931 in Piñar del Rio, Cuba, while the other form *D. a. discolor* (type locality Surinam) is a straggler (?) to Puerto Rico (where it may breed), St. Croix, and the southern Lesser Antilles, whence it is known from Barbados, the Grenadines (Mustique) and St. Vincent.

The only serious discrepancy in Edwards is that both in the plate and in the description in the text the whole back of the neck and upper back are given as brick red as in the birds currently called *autumnalis* from Central America and southern United States. However, these birds do not have the gray pectoral area. It is necessary, therefore, to decide which of the two characters is to be taken more seriously. Inasmuch as the one Puerto Rican example examined and the series of the same form from northern Colombia and northern Venezuela are somewhat variable in the amount of rufescent suffusion on the hind neck and upper back, and inasmuch as many, if not most, of Edwards' plates, as well as those of his contemporaries, tend to be too highly colored, it seems wiser to give more importance to the buffy-gray pectoral character than to the absence in Edwards' figure of a similar dorsal one.

Correspondence with James Bond, our leading authority on West Indian birds, has brought out the thought that since the Black-bellied Tree-duck is very rare in the islands,

it is quite possible that the bird described by Edwards did not really come from there at all. In this eventuality the status of *autumnalis* would be made doubtful to the point of making one wonder if it could be considered strictly identifiable. On the whole, and especially since the species is known from the West Indies, even if possibly chiefly as a straggler from some part or parts of the mainland, it seems in the interests of nomenclatural stability to retain the type locality as it stands. It is, of course, quite possible that the bird Edwards saw, and the one I have seen, were both strays from the mainland. In this case our bird must be assumed to have come from northwestern Venezuela or northeastern Colombia.

Inasmuch as the only West Indian (Puerto Rican) specimen seen agrees with most of Edwards' description, which, in turn, is the sole basis of *Anas autumnalis* Linnaeus, it follows that Bond's (sight unseen) allocation of Puerto Rican birds to *discolor* is erroneous. It is true that in Edwards' figure the rufescent color of the hind neck is continuous with that of the back (as is the case in Central American and south Texan birds) while in our one Puerto Rican example there is an extensive break of buffy grayish somewhat (but not nearly as pronouncedly gray) as in *discolor*, but, in the other characters, Edwards' figure and his description and our bird are alike. There is no question as to the distinctness of *discolor*, of which a very large series, including 14 topotypes from Surinam, have been studied, but it does seem that all West Indian records should be placed with the nominate race, at least until actual specimens of true *discolor* are collected in the islands.

There is, on the other hand, an equal certainty that the birds from western Panamá north to southern Texas are not *autumnalis* but are even more distinct from that form than are the birds of the Guianas, eastern Venezuela, Brazil, Ecuador, and Bolivia (*discolor*). If the name *autumnalis* had been bestowed originally on a Central American bird it might have been possible to consider what we must now look upon as true *autumnalis* as a group of intermediates between the other two groups, but unfortunately this is not the case, and it is not correct to apply the name of the West Indian and northern Colombian birds to those of the region from Panamá to Texas. These latter birds have the rufescent color extending completely over the lower throat and the breast to the anterior margin of the blackish belly and also have the same rufescent color of the hind neck continuing without a break of buffy gray into the rufescent of the back. These birds have been called *autumnalis* by practically all recent authors, but, as indicated above, this is erroneous. No name appears to be available for these birds, but before proposing a name, it is necessary to point out that this population is in itself divisible into two races, a more northern one (southern Texas and adjacent parts of northeastern Mexico) with a dark brown belly, and a more southern one (Panamá to Veracruz, Hidalgo, Sinaloa and Sonora) with a deeper blacker color on the abdomen. Both of these races, if they are to be recognized, need names, and for them are proposed the following.

***Dendrocygna autumnalis fulgens* new subspecies**

*Type*.—U. S. Nat. Mus. no. 112429, adult ♂, collected at Lomita Ranch, Texas, July 31, 1880; ex collection of G. B. Sennett (original no. 271).

*Characters*.—Similar to the nominate race but with posterior part of lower throat and entire breast dark ochraceous tawny to rufescent antique brown with no area of grayish or buffy grayish between it and the dark belly; hind neck and upper back similarly uniform ochraceous tawny to rufescent antique brown; abdomen, lower sides, flanks, and thighs fuscous to between Prout's brown and mummy brown, with a varying amount of white on thighs and under tail coverts.

*Description of type*.—Forehead and anterior part of crown dusky isabelline, darkening posteriorly into tawny olive to Sayal brown of crown and occiput; nape darker—between Saccardo's umber and sepia, changing along hind neck into dark ochraceous tawny to rufescent antique brown or tawny hazel; scapulars and interscapulars and upper back tawny hazel to rufescent antique brown, the feathers with darker centers; greater upper wing coverts white, the median upper secondary coverts also

white; lesser upper wing coverts dusky isabelline; the alula chaetura drab, paling on outer webs to light grayish olive; primaries dark chaetura drab to almost black, all but outermost two with a large area of white occupying basal two-thirds of outer webs; secondaries dark chaetura drab, the innermost ones dusky tawny hazel like scapulars but darker; back ashy blackish; lower back, rump, and upper tail coverts black; lores, superciliary area, cheeks and auriculars pale light grayish olive to pale smoke gray; chin and upper throat white, the latter more or less tinged with smoke gray; lower throat, side of lower neck, and all of breast dark ochraceous tawny to rufescent antique brown or tawny hazel, paling slightly at posterior margin of breast to tawny hazel tinged with pale tawny olive; abdomen, sides, flanks, and thighs fuscous brown to between Prout's brown and mummy brown, the thighs and under tail coverts with a varying amount of white mixed with the mummy brown; under wing coverts black.

*Measurements of type*.—Wing, 234; tail, 70; exposed culmen, 52; tarsus, 64; middle toe without claw, 67 mm.

*Range*.—The Gulf coast and the Rio Grande Valley of Texas, south to northeastern Mexico; Tamaulipas (Altamira).

Of this race I have examined 4 males and 4 females.

***Dendrocygna autumnalis lucida* new subspecies**

*Type*.—U. S. Nat. Mus. 359576, adult ♂, collected at Tres Zapotes, Veracruz, May 2, 1940, by M. A. Carriker, Jr.

*Characters*.—Similar to *D. a. fulgens*, but with abdomen, lower sides, flanks and thighs fuscous black to black, with a slight blue-black gloss.

There is no need to give a full description of the type as it would read exactly the same as that given above for *D. a. fulgens* with the exception of the color of the posterior under parts.

*Measurements of type*.—Wing, 236; tail, 66.2; exposed culmen, 45.4; tarsus, 61.1; middle toe without claw, 62.8 mm.

*Range*.—From Veracruz and Sonora and Sinaloa southward to Costa Rica and the western half of Panamá (no Panamanian specimens seen in the course of this study, however); casually to California (one record, specimen apparently lost) and to Arizona (near Tucson).

Of this race I have examined 11 specimens from Mexico (Veracruz, Sonora, and Sinaloa), Guatemala, Costa Rica, and Arizona (near Tucson). I have not seen any California birds, but two from Camoa, Sonora, and two from near Tucson, Arizona, are nearer to *lucida* than to *fulgens*, although not as dark on the abdomen as more southern *lucida*. The California record is placed with this race rather than with *fulgens* on the grounds of geographical probability. Until specimens from there are critically identified it may be best not to accord *lucida* a place in the California list.

Inasmuch as the name *autumnalis* has been consistently misapplied to the Central American and Mexican birds, it may be worth-while giving a description of the race to which the name is now restricted.

*Adult* (sexes alike).—Similar to that of *D. a. fulgens* but ochraceous tawny of hind neck gradually becomes suffused on interscapulars and upper back with pale buffy wood brown and, more posteriorly, with buffy drab; ochraceous tawny of lower throat paler on breast to between warm buff and light ochraceous buff, the width of this paler area varying individually.

The very gray-breasted race of South America, *D. a. discolor*, occurs from central northern Venezuela, Trinidad, and the three Guianas south to Ecuador in the west, and to Bolivia, northern Argentina, and southeastern Brazil (São Paulo) in the east. In studying this form I have had a series of some 14 Surinam birds (topotypes) as a standard with which to compare 4 examples from central and eastern Venezuela, 12 from eastern Brazil, 7 from Bolivia, and 1 from British Guiana. No constant geographic variations in size or coloration could be discerned in this series.

The Fulvous Tree-duck, *Dendrocygna bicolor*, has two races, *helva*, and the nominate one. The former breeds in fresh-water marshes from central California, central Nevada, southern Arizona, and eastern Texas, and possibly southern Louisiana, south to central México; it winters as far south as Chiapas. The typical subspecies has an amazingly wide and interrupted range, being resident in several widely separated parts of the world: in South America, in Africa, and in India and Burma. In tropical America

it occurs from the Pacific slope of Panamá south through Colombia, Venezuela, Trinidad, the Guianas, Ecuador, Peru (whence there is an apparently valid record from Lake Junin, at an altitude of over 11,000 feet above sea level!) and eastern and southern Brazil (not in the main Amazon valley), to Paraguay, Argentina (south to Mendoza and Buenos Aires provinces), and, possibly only accidentally, to Chile (two records). In Africa, south of the Sahara, it occurs chiefly in the eastern half of the continent (the few West African records being from Lake Chad, from Portuguese Congo, and from Nigeria); it is present from the Sudan and Ethiopia south through Uganda and Kenya Colony, Tanganyika Territory, the eastern and southern Belgian Congo, Nyasaland, Rhodesia, Bechuanaland, and to Natal; also in Madagascar. In India and Burma it ranges from the Punjab to Bengal, and south to Ceylon; also in Nepal, Assam, and Upper Burma (the southern Shan States).

In all this enormous range in which the population of any given continent is obviously completely cut off from those in the other two, no noticeable constant difference in coloration or dimensions has become fixed. When I started my study, I assumed that someone must have made direct comparisons between Indian, African, and American specimens, but a search in the literature failed to reveal any definite evidence to that effect although there are some blanket statements, without details, suggesting that such had been done. Through the kind cooperation of the authorities of the leading American museums I have been able to assemble approximately 100 specimens, 85 of which are sexed and accompanied by good data. Of these 85, 27 are from the mainland of Africa, 14 from Madagascar, 25 from southern South America (Argentina and Chile), 17 from northern and western South America, and 2 from India and Burma. This series, probably the most extensive it has been the fortune of any student to examine, certainly indicates that these birds cannot be divided into geographic groups on the basis of color, pattern, size, or proportions. Coloration does not lend itself to graphic rendition, but the dimensional data may be submitted in the following summary. In each instance the measurements given (in millimeters) are the minimum, the maximum, and, in parentheses, the average.

General locality	Sex and number of specimens	Wing	Tail	Exposed culmen	Greatest width of bill	Tarsus	Middle toe without claw
Madagascar	7 ♂	201-228 (215)	48-52.4 (49.7)	44.2-52.4 (47.9)	18.5-20.6 (19.7)	52.2-56.8 (54.6)	60.3-66.0 (63.1)
	7 ♀	207-220 (214.7)	46.6-56.6 (51.1)	45.2-49.5 (47.8)	18.7-20.4 (19.5)	53.2-58.0 (54.6)	60.3-66.9 (63.4)
Africa	12 ♂	202-242 (216)	44.2-57.1 (49.2)	43.1-48.1 (46.2)	18.5-21.7 (19.8)	52.1-57.2 (54.2)	59.0-67.2 (63.1)
	15 ♀	203-235 (217)	41.1-53.3 (48.4)	41.5-50.0 (46.1)	18.1-21.1 (19.6)	50.1-58.9 (54.0)	57.2-71.4 (63.1)
Argentina	14 ♂	213-235 (223)	42-53.2 (47.9)	45.1-51.7 (48.6)	19.1-21.9 (20.5)	52.1-60.7 (56.7)	64.1-69.1 (65.8)
	11 ♀	201-232 (217)	43.6-55.4 (50.2)	45.2-49.4 (47.2)	18.1-21.2 (19.9)	52.1-60.3 (55.9)	59.1-75.4 (66.1)
Remainder of South America	10 ♂	210-230 (215)	45.6-53.5 (50.5)	43.1-50.5 (47.5)	17.2-21.0 (19.5)	52.4-56.2 (54.7)	61.0-66.6 (64.7)
	7 ♀	201-226 (212.5)	41.1-54.1 (47.2)	43.1-47.0 (45.0)	18.9-20.5 (19.5)	51.7-55.9 (53.1)	61.5-65.3 (63.8)
India and Burma	2 ♂	221-229	46.7-55.6	46.6-49.1	18.7-19.6	52.1-60.3	62.6-68.7
	1 unsexed	216	48.1	46.2	19.3	55.2	64.1

It is puzzling indeed to find so large and discontinuous a part of the earth's surface inhabited by an unvarying population of this species while in a relatively small area in



Mexico and southern United States a different race replaces it. This form, *Dendrocygna bicolor helva* Wetmore and Peters is well differentiated by its smaller and narrower bill. The greatest width of the bill is consistently under 20 mm. in *helva* and equally consistently over 20 mm. in the nominate race. In the original description *helva* is said to be lighter and brighter in color on the under surface and paler on the crown than *bicolor*, but these color differences do not appear to be reliable characters in the large series examined by me. The bill character, however, is sufficient to warrant the recognition of the subspecies. Wetmore and Peters noted themselves that the color differences they described were not too constant, as they inserted in their remarks: "... an occasional specimen of *D. b. helva* approaches typical *bicolor* in dark dull coloration . . ."

A detailed description of the plumages and distribution of *D. b. helva* follows.

*Adult* (sexes alike).—Top of head between russet and mars brown with a slight wash of dark mouse gray on occiput; sides of head (cheeks and auriculars) and of upper neck tawny olive, each feather margined with buffy brown, producing an appearance of faint streaks, the basic color merging above with color of crown; nape with a broad streak of black, bordered by tawny olive; sides of neck and foreneck lighter than pale olive-buff, the feathers on the middle of foreneck and sides of neck dusky neutral gray basally and laterally, producing an appearance of fine, dark, poorly defined lines, arranged as a half collar; base of hind neck and upper back Verona brown, tipped with cinnamon buff, the feathers of upper back indistinctly darker in a line marking prolongation of black neck stripe; back and wings in general dull black, feathers of back and scapulars tipped broadly with Verona brown, changing distally to cinnamon-buff; lesser and middle upper wing coverts, save on outer portion, russet; outer coverts of these two series black, tipped slightly with russet; greater upper wing coverts, primaries, secondaries, lower back, and center of rump black; sides of rump and lateral upper tail coverts light buff; central upper tail coverts nearly white; rectrices dull black; chin, throat, and upper foreneck dull white, washed more or less with cinnamon buff; lower foreneck and upper breast clay color becoming Sayal brown on lower breast, sides, and abdomen, the feathers tipped indistinctly with pinkish buff; under tail coverts dull white, washed laterally with pinkish buff; an indistinct white line through center of abdomen; feathers of tibiae streaked with ivory yellow; under wing coverts and axillars blackish mouse gray; feathers of sides and flanks long, streaked broadly with dull ivory yellow, the light streaks bordered indistinctly with olivaceous black; bill bluish black, the nail black; tarsi and toes deep bluish gray, the claws long and blackish; iris dark reddish brown to brown.

*Juvenal* (sexes alike).—Very similar to adult but generally duller, the under parts averaging somewhat paler, the upper wing coverts paler, less russet, the feathers of back with narrower brown edgings, and central upper tail coverts terminally suffused, or tipped, with brownish.

*Natal down*.—Top of head clove brown; chin, throat, and sides of head dull white, a streak of white extending around back of head on each side and meeting on occiput; a short, dull white streak on each side of head from side of bill to above eye; hind neck clove brown, a streak of clove brown extending on side of head below white streak which encircles head; rest of upper parts uniform bister brown; whole under parts dull white; bill (in dried specimen) dusky brown (apparently light blue-gray in life, according to Shortt's figure in Kortright, "Ducks, Geese and Swans of N. Amer.," 1942: pl. 35, fig. j), with a prominent yellowish nail; feet grayish yellow in dried specimen [dusky gray in life (?) according to Shortt (*cit. supra*)].

*Adult male*.—Wing, 196-224 (210.1); tail, 45-54 (46.4); culmen from frontal feathering, 44-48.5 (46.4); greatest width of bill, 17.3-19.8 (18.5); tarsus, 52-60 (56.5); middle toe without claw, 65-70 (66.4 mm.); measurements based on 14 specimens from California and Mexico.

*Adult female*.—Wing, 202-225 (210.9); tail, 47.5-54 (49.6); culmen from frontal feathering, 45-48.5 (46.8); greatest width of bill, 18.1-19.1 (18.5); tarsus, 52-57 (55.2); middle toe without claw, 64-70 (66.9 mm.); based on 14 specimens from Louisiana, Texas, California, and Mexico.

*Range*.—Breeds in fresh-water marshes from central California (San Joaquin Valley and Pacific slope of southern California; chiefly vicinity of Los Baños, Merced County, but also in Santa Clara, Kern, Los Angeles, San Diego, and Imperial counties); central Nevada (Washoe Lake and Carson); southern Arizona (Fort Whipple); and eastern Texas (Nueces County), and possibly in southern Louisiana (whence summer records but no nesting records are known; Lake Catharine and the Rigolets); south to central Mexico (Lake Chapala, Jalisco, and the Valley of Mexico; apparently absent in Chihuahua and Coahuila).

Winters from its breeding range southward to Guerrero, Tabasco and Chiapas in southern Mexico; wanders northward in California to the Sacramento Valley and Marin County.

Casual north to Washington (Grays Harbor; above Okanogan) and Vancouver Island, British Columbia (Alberni); to Minnesota (Arco, Lincoln County); Missouri (Knox City; New Albany); and east to Florida (Lake Okeechobee) and North Carolina (Swan Island).

Accidental in Cuba and Bermuda; recorded unsatisfactorily from Iowa.

Type locality.—Unlucky Lake, San Diego County, California.

The White-faced Tree-duck, *Dendrocygna viduata*, is another species with a wide and discontinuous distribution, being found in tropical America from Costa Rica (Bebebero and Guanacaste) south through Panamá and most of South America (to Perú, Bolivia, Uruguay, and Argentina), and also in the West Indies (Cuba, Puerto Rico, Hispaniola, and Barbados) and Trinidad. It occurs again throughout Africa south of the Sahara, and in Madagascar, the Comoro Islands, Mauritius and Renuni6n. Many years ago Hartlaub (Jour. für Ornith., 1854:304) separated the Old World population under the name *personata* on the basis of the possession by these birds of a black throat band medially interrupted by white, as contrasted with the continuous black band in Neotropical examples. In an editorial footnote on the same page Cabanis wrote that the distinguishing character of *personata* was not constant, but he gave no indication of what material he had seen.

The name *personata* Hartlaub dates from 1854 as given above. Hartlaub based it on Württemberg in Jardine's Contr. Ornith. (1850:140), but at this point it is, however, a *nomen nudum* as no description is given and not a word as to how, or whether it differs from *viduata*. Prince von Württemberg never published a validation of his name *personata* as was first pointed out by Hartert (Kat. Vogelsamml. Mus. Senckenb., 1891:228).

When I began my study of this species, the limited series in the United States National Museum indicated that, contrary to previous opinion, there seemed to be a sexual dimorphism in this character of the throat pattern and that if birds were separated by sexes African males had the throat band medially interrupted by white while South American ones had this black band continuous across the throat. Females from both continents varied individually in this regard. The total series was small, however—4 Neotropical and 6 African males, 1 Neotropical and 6 African females. At my request Dr. James P. Chapin then examined the far more extensive material in the American Museum, inasmuch as I could find nothing in literature that gave definite data, the only statements, as in the case of *Dendrocygna bicolor*, being blanket pronouncements without supporting evidence. Chapin's notes, which settle the matter, are based on some 85 adults from all parts of the range and are here outlined with a deep sense of gratitude to him for the time and trouble he has taken in this study.

Of 11 South American adults, 5 have complete, broad black throat bands (4♂, 1 unsexed), 4 have the throat bands narrow or slightly broken (2♂, 2♀), and 2 have the bands broadly interrupted by white on the mid-line of the throat (1♀, 1 unsexed). Of 62 African adults 15 have complete broad black throat bands (4♂, 7♀, 4 unsexed), 23 have the throat bands narrow or slightly broken (11♂, 8♀, 4 unsexed), and 24 have the bands broadly interrupted with white medially (15♂, 7♀, 2 unsexed). Of 13 Madagascan adults 7 have complete broad black bands (3♂, 3♀, 1 unsexed), 5 have the bands slightly broken (3♂, 2♀), and 1 has the band broadly interrupted by white medially (1♀). It follows that the apparent sexual difference shown by the Washington series is not real; on the average the black tends to be less extensive in African birds, but in Madagascan examples the condition closely agrees with that in Neotropical series. It follows that it is not advisable, or possible, to recognize *personata* as distinct from *viduata*. There is nothing in the size variations that clearly distinguishes African from South American birds, as is indicated by the following figures based on the material in the United States National Museum.



Locality	Sex and number of specimens	Wing	Tail	Exposed culmen	Tarsus	Middle toe without claw
South America	4 ♂	228-237 (232)	57.1-61.2 (58.7)	47.2-49.2 (48.3)	53.5-61 (56.6)	56.9-61 (58.1)
Africa	6 ♂	216-222 (219)	54-58 (55.4)	47-49.1 (47.7)	48.1-55 (52.6)	50-56.8 (54.9)
South America	1 ♀	231	57.4	48.7	60	66.3
Africa	6 ♀	221-225 (223.3)	53-59.1 (56.3)	45.3-48.9 (47.4)	52-55.2 (52.9)	53-55.2 (54.3)
Madagascar	1 unsexed	215	59.1	47.2	58.5	58.9

Dr. Chapin informs me that the 11 Neotropical specimens in New York (both sexes included) have wing lengths of 205-235 mm., and that the 13 Madagascan adults (both sexes) have wings of 210-238 mm. He notes that Bannerman (Birds of Tropical West Africa, i, 1930:151) found the wing length of 75 African specimens to vary from 212-237, tail 58-63, tarsus 45-55 mm.

It is true that South American birds appear to average slightly larger, especially in their tarsal and toe measurements, but the overlap is so extensive that there is no point in trying to use this fact as an argument for subspecific "splitting."

Again, as in *D. bicolor* over most of its range, we have a widely ranging, highly discontinuously distributed species, showing no constant geographic variation.

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*United States National Museum, Washington, D.C., May 15, 1947.*

## EYE-COLOR IN THE GREEN JAY

By GEORGE MIKSCH SUTTON

In two current and standard North American bird guides the color of the eye of the Green Jay (*Xanthoura yncas*) is shown as clear, light yellow. Whether or not we regard *Xanthoura yncas glaucescens* as a valid subspecies (see Hellmayr, Cat. Birds Amer., pt. 7, 1934:36, footnote), these pictures certainly are intended to represent the United States bird, that is, the race inhabiting the Lower Rio Grande Valley. I have observed the Green Jay repeatedly in the Brownsville region of Texas as well as at many localities in the Mexican states of Tamaulipas, Nuevo Leon, and San Luis Potosí, and I have yet to see anywhere throughout this region a yellow-eyed bird. I have handled or sketched in detail several freshly-killed male and female specimens, every one of which had dark brown eyes. I cannot say exactly how old these birds were, to be sure, but they were all in full winter or breeding plumage. I suspect that nestlings, as well as birds in juvenal feather, are grayer-eyed than full adults and birds in their first winter plumage, but of this I am not sure, for I have yet to observe the species in mid-summer. The fact that on numerous occasions I have made a point of inspecting good-sized companies of jays (in which there almost certainly were fully adult as well as first-year birds), without ever discovering among them a yellow-eyed individual, I regard as significant.

The concept of a yellow-eyed Green Jay may well be traceable to Louis A. Fuertes' portrait of the bird in Bird-Lore (1919: plate opp. p. 149), an animated study which probably was based on the artist's personal experience in Colombia, Yucatan, or possibly Veracruz. Interested in determining why Fuertes had so painted the species, as well as in making certain that ornithologists were not overlooking some striking difference in eye-color between South American and North American birds, I asked Robert Cushman Murphy to look through the Fuertes original drawings now in the possession of the American Museum of Natural History in the hope of finding at least one field-sketch of the Green Jay. Dr. Murphy courteously wrote me under date of February 26, 1947, that he had gone over the "entire series of the Fuertes paintings and other sketches," but found "nothing whatsoever" representing the genus *Xanthoura*.

Pursuing further the matter of the Bird-Lore color-plate, I borrowed from Cornell University all *Xanthoura* specimens bearing original Fuertes labels and requested my friend Dwain W. Warner to search the Fuertes field catalogues for notes pertaining to Green Jay eye-color. No evidence came to light.

J. Kenneth Parkes generously transcribed from labels of Green Jays in the American Museum of Natural History all comments pertaining to eye-color. His carefully prepared report gave me, at long last, definite proof that at least some South American Green Jays were yellow-eyed, but it just as clearly proved that some North American Green Jays also were yellow-eyed. Labels on 7 South American Green Jays clearly indicated that the living birds had been yellow-eyed, and he found no specimen so marked as to indicate that it had been brown-eyed. A male and female taken at Zamora, Province of Loja, Ecuador, by W. B. Richardson had had "yellow" eyes. A male collected by W. Hoffmans at Libertad, Province of Huanuco, Peru, and a male collected by O. T. Baron at Livanto, Peru, had had "gold" and "yellow" eyes, respectively. These four specimens represented the nominate, as well as the most southward ranging, race (see Hellmayr, *op. cit.*:31).

Among several Colombian specimens at hand are 5 well prepared Fuertes skins—2 *X. y. galeata* (from Miraflores and Fusugasugá, respectively) and 3 *X. y. cyanodorsalis* (2 from Monteredondo and 1 from Quetame)—all with good labels in Fuertes' own handwriting. Unfortunately, however, not one of the labels bears so much as a word as

to the colors of the fleshy parts. Chapman (Distribution of Bird-Life in Colombia, Bull. Amer. Mus. Nat. Hist., 36, 1917:637-639), who does not list *Fusugasugá* among the localities at which *galeata* was taken, nor Monteredondo among the localities at which *cyanodorsalis* was taken (despite the facts that Fuertes was a member of both the 1911 and 1913 expeditions, and that the Fuertes specimens were available to Chapman when he was working up his material), makes no comment whatever on colors of fleshy parts of living birds. Mr. Parkes found in the American Museum collection two Colombian specimens which had label-comments on eye-color. One of these, a male from Los Tambos, collected by J. H. Batty, had had "pale yellow" eyes. The other, an unsexed specimen from the Cauca Valley, collected by P. W. Pain, had had "yellow" eyes.

As for Venezuelan birds (*X. y. cyanodorsalis* and *X. y. caeruleocephala*), I hesitate at this writing to say that all are yellow-eyed, although my friend W. H. Phelps believes that they are. A female in the American Museum of Natural History collected by F. W. Ulrich at Quebrada Seca (near Mérida; see Phelps, Bol. Soc. Venez. Ciencias Naturales, no. 61, 1944:419 and map opp. p. 418), had had "yellow" eyes. In the Phelps Collection in Caracas there are 80 Venezuelan specimens of *Xanthoura yncas*—27 of *cyanodorsalis* and 53 of *caeruleocephala*. Mr. Phelps has been good enough to examine the labels of all of these critically for me, reporting that 74 clearly gave the eye-color as yellow, but that 3 (*cyanodorsalis*) indicated "sepia" eyes, 1 (*caeruleocephala*) indicated "brown" eyes, and 2 (*caeruleocephala*) indicated "dark" eyes. He commented that the series was "the work of many different collectors, so the color 'sepia,' 'brown,' and 'dark' may well have been the interpretation of different collectors for the same color." I cannot quite agree with this comment. Granting that what is "sepia" to one person might conceivably be a shade of yellow to another, I nevertheless feel that a better explanation is that young Green Jays of all races probably are somewhat darker eyed than adults and that this dark eye-color might easily have been called "sepia" by one collector, "brown" by another, and "dark" by a third.

Summarizing the foregoing, we may state that all South American Green Jays probably are yellow-eyed when adult. In view of the fact that the North American Green Jays are, as a group, widely separated from those of South America (there being no Green Jay in Panama, Costa Rica, or Nicaragua), we might reasonably expect the South American birds to constitute a full species characterized at least by yellow-eyedness, if in no other way. Such obviously is not the case, however, for several specimens from Yucatan and British Honduras, as well as one Sumichrast specimen in the American Museum of Natural History, believed to have been taken in the vicinity of Tehuantepec, Oaxaca, were yellow-eyed; and the fact that two male specimens collected by J. H. Batty in Jalisco were, respectively, "hazel" and "dark hazel" in eye-color, suggests that there probably is a zone of intergradation, rather than a definite break, between the yellow-eyed and brown-eyed birds. The term "hazel" is, admittedly, somewhat doubtful, but I believe we are safe in assuming that Batty's "hazel," and even his "dark hazel," were shades of brown definitely lighter than that of the eyes of birds from Texas, Nuevo Leon, San Luis Potosí, and Tamaulipas which I have handled.

I have not, thus far, come upon any specimens from Honduras or eastern Guatemala whose labels bore comments as to eye-color. In the University of Michigan Museum of Zoology there are, however, two beautiful male specimens of *X. y. centralis* collected by Van Tyne at Cayo, British Honduras, both of which had had, according to statements on the labels, "Light Cadmium" irides.

As for *X. y. maya*, the race inhabiting Yucatan, there are no comments concerning eye-color on the labels of two Fuertes specimens collected in 1910 at Chichen-Itza. But in the Museum of Zoology at the University of Michigan I find two specimens, a

male and a female taken by Van Tyne at Chichen-Itza, which had had, respectively, "Light Cadmium" and "yellow" eyes.

*X. y. vivida*, the race inhabiting western Guatemala (departments of Sololá and Huehuetenango), the Mexican states of Chiapas and Oaxaca, and possibly also Michoacan, Guerrero and Colima (see Hellmayr, *op. cit.*:35), presumably is yellow-eyed. I already have commented on the Sumichrast specimen from Tehuantepec. In my own collection there are 3 specimens of *vivida* taken by Helmuth Wagner at Prussia, Chiapas, all of which had "yellow" eyes.

*X. y. luxuosa* may or may not be yellow-eyed. Unfortunately the original labels of two specimens at Cornell University which Fuertes collected at Córdoba, Veracruz, in 1910, and which may well have been partly responsible for his belief that all Green Jays were yellow-eyed, bear no comments as to eye-color. Wetmore (Proc. U. S. Nat. Mus., 93, 1943) did not himself collect any Green Jays in the Sierra de Tuxtla; but in writing me of his failure to discover anything pertaining to *Xanthoura* eye-color in the field notes of M. A. Carriker, he expressed an "indefinite memory" that "the sexes in *Xanthoura* may differ somewhat in eye-color," and I wonder if this "memory" may not be of southern Veracruz birds which happened to be intermediate in eye-color, or of pairs in which one bird was brown-eyed and the other yellow-eyed, exactly as one might expect to find them in an area of intergradation.

From all that I have so far presented it would appear that only the very northernmost of the Green Jays have really dark brown eyes. In plate 42 of volume 2 (Land Birds) of Baird, Brewer and Ridgway's "A History of North American Birds" (Little, Brown and Company, Boston, 1905) the head of a Green Jay is shown in color. The eyes of this figure are dark brown. The legend reads: "New Leon, New Mex" [*sic*]. An adult female which I collected at La Paloma, Cameron County, Texas, on March 10, 1938, had "dark brown eyes." Specimens which John B. Semple, Thomas D. Burleigh and I took near Monterrey, Nuevo Leon, in 1938, were all brown-eyed. One of these, a male taken by Burleigh, I sketched in detail on February 6. Adults which O. S. Pettengill, Robert B. Lea, Dwain W. Warner and I took along the Rio Sabinas, in the Gomez Farias region of southwestern Tamaulipas, in the spring of 1941, all were brown-eyed. The southernmost point at which I have seen the Green Jay is Jalapa, Veracruz. I did not, unfortunately, collect a specimen there and am not certain as to the eye-color of birds which I saw at a distance. Where the zone of intergradation between yellow-eyed and brown-eyed birds lies is, then, a moot matter.

Somewhere in Tabasco or Campeche, possibly, as well as in certain south-central Mexican States, we may logically expect to find populations of Green Jays in which the eyes are neither dark brown nor yellow. Such populations ought to assist us in plotting the ranges of the races involved. It is my present belief that the races *luxuosa* and *glauescens* are brown-eyed and that they are the only races of those now recognized which are so colored.

In any event we may, with assurance based in part on my own field experience, make the following statements: 1. The Green Jay of the United States has dark brown eyes when adult. Pictures of *Xanthoura yncas* which are to represent the species as bird students will see it at Brownsville, Texas, should, therefore, show the eyes as brown. 2. Whatever the final explanation of the Panamanian-Central American gap in the range of the monotypic genus *Xanthoura*, yellow-eyedness is characteristic of birds found both to the north and to the south of the gap, hence it is reasonable to believe that the ancestral form was yellow-eyed and that the brown-eyed race or races are those which have most recently evolved.

Museum of Zoology, University of Michigan, Ann Arbor, Michigan, April 30, 1947.

## TAXONOMY AND DISTRIBUTION OF THE MEXICAN SPARROW *XENOSPIZA BAILEYI*

By FRANK A. PITELKA

The small, montane sparrow described by Outram Bangs (Proc. New Engl. Zool. Club, 12, 1931:85-88) as *Xenospiza baileyi* is known in the literature apparently from only ten specimens. Nine of these were taken by W. B. Richardson in the Sierra Bolaños, northern Jalisco, Mexico, and include the type of *Xenospiza baileyi*, about whose collector Bangs (*loc. cit.*) was in doubt. From this series I have examined one from the United States National Museum (see table 1) collected on March 5, 1889, and one from the British Museum collected on March 9, 1889. Bang's type, in the Museum of Comparative Zoology, was collected on March 8, 1889. Six additional specimens from the Sierra Bolaños are in the British Museum (Hellmayr, Cat. Birds Amer., pt. 11, 1934: 408). The tenth specimen was taken by Alfred M. Bailey (see Bailey and Conover, Auk, 52, 1935:423) on March 22, 1931, thirty miles southwest of Durango at 8000 feet altitude and is now in the Colorado Museum of Natural History.

To these specimens may be added an eleventh collected approximately 375 miles east-southeast of the Jalisco locality (see fig. 41), at La Cima, 3000 meters altitude, in the Distrito Federal, Mexico, on April 23, 1945, by Helmuth O. Wagner. This specimen appears to represent a new race which is more black, more strikingly spotted, less buffy, and probably larger than that of the Sierra Madre Occidental, and which may be known as

### *Xenospiza baileyi sierrae* new subspecies

*Type*.—Male, apparently adult (testes "4 mm"), no. 93519 Mus. Vert. Zool.; La Cima, 3000 meters, Mexico, D. F., April 23, 1945, collected by H. O. Wagner, orig. no. 1140.

*Subspecific characters*.—Similar to *Xenospiza baileyi baileyi*, but breast spots darker (more black) and broader; breast with a prominent medial cluster of spots as in *Melospiza melodia* (absent in three specimens of *X. b. baileyi*); malar streak much darker (more black) and more prominent; streaks on sides of belly darker (more black); sides of head less buffy, more gray; crown darker (more black, less brown), the central black area of individual feathers being broader, the lateral russet-brown or gray-brown margin narrower; bill dull black dorsally (not dull brown).

*Geographic distribution*.—Known only from the type locality, in high mountains near Mexico City in the Distrito Federal. According to Hooper (Jour. Mamm., 28, 1947:41), the type locality, La Cima, is "a village near the crest of the divide, 2900 meters elevation, 35 kilometers south-southwest of Mexico City on the Cuernavaca highway."

The distinctive characters attributed to *X. b. sierrae* are based on a comparison of but one specimen of that proposed race with three of *X. b. baileyi*. Each of these three specimens differs from the one of *X. b. sierrae* in comparable degree. Other less marked differences, possibly of racial significance, are, in *X. b. sierrae*, longer wing, tail, and bill (see table 1), less buff (Cream-buff, not Cinnamon-buff, in Ridgway, Color Standards and Color Nomenclature, 1912) on sides of belly, and more black (less brown) and possibly also larger terminal spots on back feathers.

A survey of generic characters among the sparrows which have been linked at any time with *Xenospiza baileyi* (see Bangs, *op. cit.*) has been made using specimens in the Museum of Vertebrate Zoology. This survey, although admittedly brief, causes me to doubt that this sparrow should be segregated in a monotypic genus. Similarities in color between *Xenospiza baileyi* and "*Coturniculus henslowi*" [= *Passerherbulus henslowi*], "*Passerherbulus lecontei*" [= *P. caudacuta*], "*Ammodramus australis*" [= *A. savanna-*

rum], and "*Passerculus savanna*" [= *P. sandwichensis*] are superficial and pertain to some characters only. The absence, in *Xenospiza*, of narrow, acuminate rectrices and of rounded form of tail with marked shortening of lateralmost rectrices seem to rule *Passerherbulus* from further consideration. Bangs (*op. cit.*) maintains that in slenderness of bill, *Xenospiza* resembles *Passerherbulus lecontei*; I find the two similar in width of bill, but the bill of *Xenospiza* is longer and deeper and in form as well as size is most similar to that of *Melospiza lincolnii* (fig. 42). The genus *Ammodramus* is ruled out by the absence, in *Xenospiza*, of narrow, moderately acuminate rectrices, short tail, long

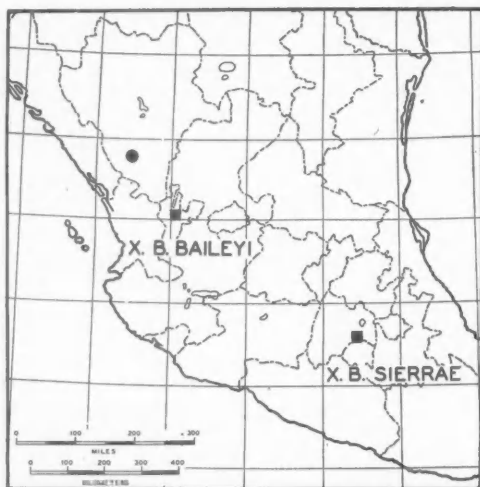


Fig. 41. Distribution of *Xenospiza baileyi*; squares indicate type localities, circle indicates third of three known localities of occurrence.

outer primary, and a bill that is heavy in relation to the skull. Long hind toe and claw, long wings, long outermost primary, and emarginate tail rule out *Passerculus*. It must be emphasized that tentative exclusion of these several genera from possible near relatives of *Xenospiza* is based solely on degree of difference suggested by a series of characters of external morphology taken in combination.

*Xenospiza* resembles the smaller members of *Melospiza* in the possession of a double-rounded, relatively long tail with broad, round-tipped rectrices, in the possession of short, rounded wings, and in a series of color-pattern characteristics. Past students have compared *Xenospiza baileyi* with *M. lincolnii* and *M. georgiana*. Color of under parts, particularly of *X. b. sierrae*, suggest *Melospiza melodia*, except for a weak, pale buff band across the streaked upper breast, particularly in *X. b. baileyi*, which suggests *M. lincolnii*. In the latter comparison, however, breast streaks are not so narrow nor the buff so dark as in *M. lincolnii*. Dorsally, *Xenospiza baileyi* is similar in general pattern to *Melospiza* except that the dark spots on the back are more broad terminally. Also, the back feathers are of a rich reddish brown (close to Russet in Ridgway, *op. cit.*) that is not evident among the other smaller melospizas. This color character, in quality and to a lesser degree in distribution, is very similar to that of the dorsum of *Passerherbulus*

*henslowi*; this fact may be the chief, and probably the only reason why *Xenospiza* was ever linked with that species.

In characters of size, proportions, and form of wing and tail, *Xenospiza* is most similar to *M. lincolni*. The tail is slightly more rounded than in that species, but less so than in *M. melodia* and *M. georgiana*. The primaries are shorter relative to the secondaries than in the migratory melospizas; the form of the wing alone is similar to that of resident races of *M. melodia*. In table 1, average measurements from Ridgway (Bull. U. S. Nat. Mus., no. 50, 1901:379, 383) serve to show how *Xenospiza* compares with the smaller melospizas.

Table 1  
Measurements of *Xenospiza baileyi* in Millimeters

	Wing	Tail	Wing/tail	Bill length from nostril	Culmen from skull base	Bill depth at nostril	Tarsus
<i>X. b. baileyi</i>							
♂ B.M. 99.2.1.262 <sup>1</sup>	60.5	55.9	1.08	7.7	12.0	6.0	19.2
♂ C.M. 16205	60.8	54.7	1.11	7.4	11.6	5.4	19.7
♂ M.C.Z. 45986 <sup>2</sup>	62	53	....	....	12	....	19
♀ U.S.N.M. 356548 <sup>1</sup>	61.7	55.6	1.11	7.1	11.7	5.8	19.6
<i>X. b. sierrae</i>							
♂ M.V.Z. 93519 (type)	65.2	57.6	1.13	8.2	13.7	6.0	19.7
<i>Melospiza lincolni</i> <sup>3</sup>	62.9	57.7	1.09	....	....	....	20.8
<i>Melospiza georgiana</i> <sup>3</sup>	62.5	59.2	1.06	....	....	....	21.6

<sup>1</sup> Topotypes.

<sup>2</sup> Measurements of type of *Xenospiza baileyi*, as given by Bangs (*op. cit.*).

<sup>3</sup> Average measurements as given by Ridgway (*op. cit.*).

With reference to Bang's (*op. cit.*) discussion of *Xenospiza baileyi*, I cannot confirm his statement that the bill of *Xenospiza* is more slender and smaller than that of *M. lincolni*; nor can I see any significance in the statement that the dorsal plumage of *Xenospiza* is longer and looser than that of *M. lincolni*. If by more "parti-colored," Bangs means that the dorsal plumage of *Xenospiza* is more variegated than that of *M. lincolni*, then he is correct; but the character is hardly of generic importance. Bangs is

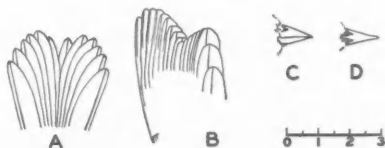


Fig. 42. *Xenospiza baileyi*. A. Tail, moderately spread, ventral view; B. wing, dorsal view; C. bill, lateral view; D. bill, dorsal view. Scale in centimeters. Outline drawings based on type of *X. b. sierrae* (see table 1).

correct in pointing out that the secondaries of *Xenospiza* are noticeably broader (see fig. 42) than those of *M. lincolni* and other small melospizas; but again, it is doubtful that this character can validate a monotypic genus.

The total impression of *Xenospiza baileyi*, then, is one of a species which is closer to *Melospiza* than to any other genus. I believe Bangs might not have linked *Xenospiza* with *Passerherbulus lecontei* had he seen the specimen from La Cima, as it suggests *Melospiza* more strongly than do those from the Sierra Madre Occidental. Yet, as em-



phasized earlier, each, or even several, of the characters of external morphology discussed above are inadequate basis for postulation of generic affinities. This point emerges clearly from comparisons among species of *Melospiza* and *Passerella* as described by Ridgway (*op. cit.*) and Swarth (Univ. Calif. Publ. Zool., 21, 1920:75-224). Their measurements and outline drawings of wing and tail demonstrate an intraspecific variation in form and size of each and in wing/tail ratio which should deter us from extensive interspecific comparisons on the basis of these characters. In *Passerella*, for example (see Swarth, *op. cit.*:182), the wing/tail ratio ranges from 0.95 to 1.23. Support by Ridgway's and Swarth's data for this argument is valid even though the concepts of several of the races listed have changed since their works were published.

Since this brief study has dealt with characters of the genus *Melospiza* and since *Xenospiza baileyi* may possibly be a member of that genus, it does not seem out of place to reaffirm that the merging of *Melospiza* with *Passerella* (Linsdale, Univ. Calif. Publ. Zool., 30, 1928:365) is supported by a strong body of evidence. *Passerella* may display some distinctive characters (for example, see A. H. Miller, Univ. Calif. Publ., Bull. Dept. Geol. Sci., 21, 1932:182), but the species *Passerella iliaca* may be regarded as an extreme among the forms included in these two genera, and the proposed merging should not be prejudiced by the fact that the name *Passerella* is linked in our minds with this extreme. The genera of American sparrows are in great need of the revisionary study accorded *Melospiza* and *Passerella* by various workers (see Linsdale, *op. cit.*:262, 367). I see no good reason, however, why *Melospiza* should not be merged with *Passerella* just because other sparrow genera are excessively split, since the necessary studies, if conducted thoroughly, will yield results at best only slowly.

Little is known of the behavior and habitat distribution of *Xenospiza baileyi*. It occurs in grass areas among pines in mountainous areas at altitudes of 8000 to 9000 feet. Bangs (*op. cit.*), quoting Alfred M. Bailey, states that the Durangan area where *Xenospiza* was collected "is a rugged mountain region, broken by precipitous canyons, and with wide expanses of park. There is much pine, with thorny shrubs and some gnarled oaks intermixed . . ." About a dozen individuals were seen on March 22, 1931, in "a small marsh, some fifty feet long by perhaps twenty feet across, grown to tall grass, dead at this season . . ." Under date of April 15, 1947, Mr. Bailey writes that "The birds were on top of the vegetation, possibly two or three feet high, and were singing, and they reminded me very much of seaside sparrows in action." In a report on their Durangan expedition, Bailey and Conover (Auk, 52, 1935:423) compared *Xenospiza* with "dark Savannah Sparrows"; but in the same letter, Mr. Bailey states that "the few that I saw were not skulking like the Savannahs, but they reminded me of them because of their size, and their habit of singing from the tips of the vegetation." Dr. Helmuth O. Wagner writes, under dates of April 25 and June 15, 1947, that he saw a pair and two single individuals of *Xenospiza baileyi* at La Cima on April 23 of the same year; one of the latter was in song. His letter indicates that the species is shy and occurs scatteredly on grass plains covered with "bushel" grass 60-80 centimeters high. He describes them as dry, secondary plains with some pines, in areas formerly covered by pine forests. The habitat of *Xenospiza baileyi* is thus not necessarily marsh as suggested by Bailey's notes. Wagner's comments corroborate Bailey's statements concerning the habit of singing from tall grass blades. Wagner describes the song as consisting of seven or eight short syllables which are followed by two melodic notes; this description, brief as it is, would seem to indicate that the song does not resemble that of *Passerculus*, *Passerherbulus*, or *Ammodramus*. However inconclusive and scanty these data may be, they should assist observers and collectors in searches for this species. It is really odd that if *Xenospiza*



*baileyi* occurs even uncommonly in the high mountains near Mexico City, its presence there has not been reported heretofore.

In summary, characters of external morphology appear to relate *Xenospiza baileyi* to *Melospiza*, or *Passerella*, *sensu* Linsdale. From the little known about habitat relations, there is no suggestion that *Xenospiza baileyi* closely resembles any of the melospizas. A brief description of the song of *Xenospiza* suggests that it differs from *Passerculus*, *Passerherbulus*, and *Ammodramus*, previously linked with *Xenospiza* but not necessarily from *Melospiza*. Further discussion of generic relations of *Xenospiza* solely in Ridgwayian terms of external morphology is futile; additional specimens, particularly skeletons, and data on habitat, song, and behavior are badly needed.

#### ACKNOWLEDGEMENTS

Presence of this little known sparrow among incompletely identified specimens in the Museum of Vertebrate Zoology was called to my attention by A. J. van Rossem, whose alertness, generosity, and broad knowledge of avian systematics have been the stimulus for this paper. I am indebted also to Alfred M. Bailey of the Colorado Museum of Natural History, J. D. Macdonald of the British Museum, and Herbert Friedmann of the U. S. National Museum for loan of specimens, and to Alden H. Miller for helpful counsel in the course of this study. Alfred M. Bailey and Helmuth O. Wagner kindly sent notes on *Xenospiza baileyi* based on their own field experience.

*Museum of Vertebrate Zoology, Berkeley, California, May 15, 1947.*

## OBSERVATIONS ON BIRD LIFE IN THE PACIFIC OCEAN OFF THE NORTH AMERICAN SHORES

By CHARLES F. YOCOM

From February 23 to September 15, 1945, our ship made five trips from San Francisco, California, to four areas in the Pacific waters ranging from 400 to 800 nautical miles from the North American shores. The geographical center of the areas and the dates when we were present at them are as follows: Area 1, 34° 40' N, 129° 50' W (400 nautical miles from San Francisco, California), April 10 to May 1 and May 24 to June 15; Area 2, 34° N, 131° 31' W (500 nautical miles from San Francisco, California), February 24 to March 19; Area 3, 31° 40' N, 136° W (800 nautical miles from San Francisco, California), July 22 to July 27; Area 4, 43° N, 135° W (465 nautical miles west of Cape Blanco, Oregon), July 8 to July 19 and August 23 to September 12. Figure 43 shows the relationship of the areas to the Hawaiian Islands, Aleutian Islands and the west coast of United States, Canada, and Alaska.

Relatively long periods of stay at a given location proved ideal for observing pelagic birds. Few ornithologists seem to have had such opportunities to observe restricted areas at sea over relatively long periods of time; accordingly, my observations contribute something to knowledge of the abundance and distribution of pelagic birds, and they add a few records of land birds seen far at sea. Table 1 consists of a list of birds observed at the four areas; the figures indicate the largest number of each species seen at one time in each area. Additional observations were made along our route, shown by broken lines on the map (fig. 43), between the oceanic areas and San Francisco. Often foggy conditions prevented detailed observations in the area between the Farallon Islands and the mainland. Table 2 lists the known species and the estimated numbers of individuals seen near the Farallones for each trip through that area. Few species were observed near these islands on trips 1, 3, 4 and 8 because of fog and stormy conditions.

A total of twenty-three different species of birds were identified far out at sea. Eight species were seen at Area 1; nine at Area 2; two at Area 3; and eighteen at Area 4. Prevailing weather conditions and the time of year undoubtedly affected the species and the number of birds observed at the four areas. The seemingly unusual number at Area 4 from August 23 to September 12 may have been due to a series of cyclonic storms passing over (see under Pintail) and carrying migrating birds off their normal routes. We were in Area 3 for only five days (July 22 to July 27) during which time the seas were calm and the weather mild (80° F. maximum). I observed the following species at sea in the regions shown in figure 43; those seen exclusively in the Farallon area are listed only in table 2. The names used are those of Grinnell and Miller (Pac. Coast Avif. No. 27, 1944).

*Diomedea nigripes*. Black-footed Albatross. Albatrosses were our constant companions, with few exceptions, from the time that we left the Farallon Islands until we returned. This species appeared to be well distributed throughout the waters visited. At all areas large numbers gathered near the ship where they fed daily on the galley scraps thrown overboard. The number of individuals around the stationary ship varied from hour to hour and from day to day (Yocom MS). One hundred and twenty-five Black-footed Albatrosses, counted in July, 1944, by a member of our crew 1000 nautical miles southwest of San Francisco, California (30° N, 140° W), is the largest number of these birds that was known to collect about the ship at one time. Albatrosses usually followed the ship when we passed to and from these areas. On a few occasions there were as many as a dozen, but the usual number varied between one and six.

*Diomedea immutabilis*. Laysan Albatross. Grinnell and Miller (Pac. Coast Avif. No. 27, 1944:41) refer to Laysan Albatrosses as rare or casual off the California coast with the center of its distribution

in the North Pacific ocean in the vicinity of the Hawaiian Islands. On March 17 at Area 2 ( $34^{\circ}$  N,  $131^{\circ}$  30' W), I saw two Laysan Albatrosses flying about with Black-footed Albatrosses. They remained in the vicinity throughout the day but were not seen thereafter. On several occasions in the previous week a single Laysan Albatross was seen at approximately the same location. According to accounts of members of the crew other "white-bodied" albatrosses were seen in this area previous to 1945.

*Fulmarus glacialis*. Fulmar. August 21 seven fulmars were seen in the channel on the south side of the Farallon Islands; September 15, twelve were observed in this same area.

*Puffinus creatopus*. Pink-footed Shearwater. On June 17 and July 5 thousands of Sooty Shearwaters accompanied by considerable numbers of "white-bellied" birds were seen twenty miles west of the Farallones in the shallow waters southeast of these islands. The shearwaters with light underparts appeared to be larger than the Sootys and were thought to be Pink-footed Shearwaters.

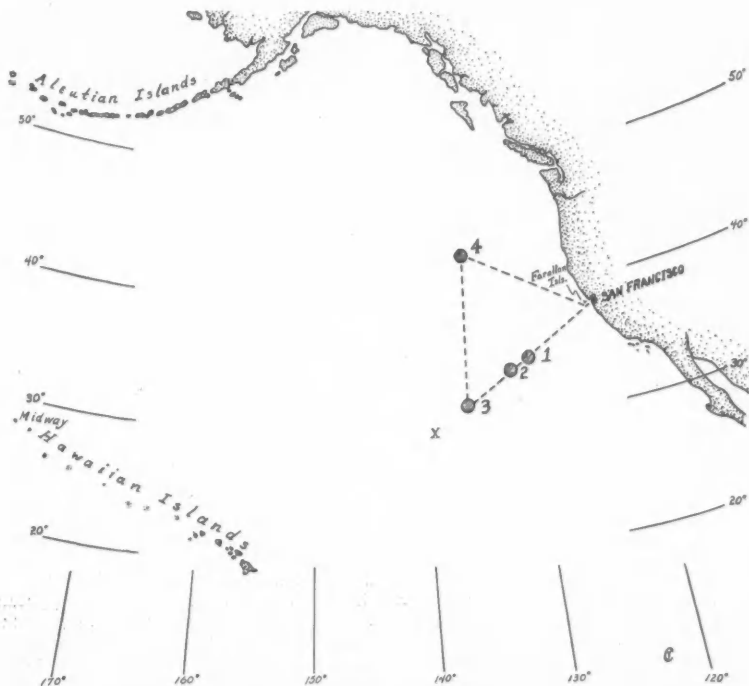


Fig. 43. Map of observation areas (numbered circles) in the northeastern Pacific Ocean; routes of ship indicated by broken line; X marks a point 1000 nautical miles from San Francisco.

*Puffinus griseus*. Sooty Shearwater. This species was seen at all four areas far at sea but not in large numbers. On August 30 six were sighted from the ship on Area 4. Unlike the Black-footed Albatrosses, these birds did not collect about the ship when it was lying to or was underway. Usually only a single bird was seen at one time as it flew about with Black-footed Albatrosses. Sooty Shearwaters were seen far at sea more often during stormy weather. Huge flocks of Sooty Shearwaters were seen around the Farallon Islands on June 17 and July 5. These large flocks of resting birds let the ship approach closely before flying out of its course. Some birds would dive rather than fly and others would flap and run over the water to a safe distance.

*Oceanodroma furcata*. Fork-tailed Petrel. Individuals were seen near the Farallon Islands on May 22 and July 5 and were noted at all areas except number 3. They were usually seen alone or in

pairs. They were not particularly attracted by the stationary ship and would soon pass on. Others were seen in waters between the coast and the four areas.

*Oceanodroma leucorhoa*. Leach Petrel. Unlike the Fork-tailed Petrel this species often was seen in larger groups, particularly at the northern area west of Cape Blanco, Oregon. On September 13 at 3:30 p.m. I counted from the bridge eighteen Leach Petrels all within one-fourth mile of the ship. Our location was 41° 23' N, 132° 04' W. One, collected at station four and identified as the subspecies

Table 1

## Species of Birds Observed at the Four Areas in Pacific Ocean

Areas	1		2		3		4	
Distance from mainland (statute miles)	460		575		535		920	
Dates of observation	April 10 to May 1	May 24 to June 15	Feb. 24 to Mar. 19	July 22 to July 27	July 8 to July 19	Aug. 23 to Sept. 12		
Black-footed Albatross	50	95	65	73	53	53		
Laysan Albatross	....	....	2	....	....	....		
Sooty Shearwater	....	3	2	1	1	6		
Fork-tailed Petrel	2	....	2	....	1	1		
Leach Petrel	3	2	2	....	4	18		
Red-billed Tropic-Bird	....	....	....	....	....	1		
Green-winged Teal	....	....	....	....	....	3		
Pintail	....	....	....	....	....	200		
Turnstone, sp. ?	....	....	....	....	....	1		
Sandpiper, sp. ?	....	....	....	....	....	6		
Baird Sandpiper	....	....	....	....	....	1		
Red Phalarope	....	....	....	....	2	3		
Skua	....	....	....	....	1	....		
Pomarine Jaeger	....	1	....	1	....	2		
Parasitic Jaeger	....	....	....	....	1	3		
Long-tailed Jaeger	....	....	....	....	1	1		
Herring Gull	10	....	25	....	....	....		
Glaucous-winged Gull	....	....	4	....	....	....		
Black-legged Kittiwake	5	....	4	....	....	....		
Sabine Gull	4	....	2	....	....	6		
Tern, sp. ?	....	....	....	....	....	2		
Nighthawk	....	....	....	....	....	1		

*Oceanodroma leucorhoa beali* by Dr. Alden H. Miller, is now at the Washington State College Museum. Although petrels were observed for many hours, none was ever noted resting on the water; they were not attracted by galley scraps.

*Phaethon aethereus*. Red-billed Tropic-bird. Grinnell and Miller (Pac. Coast Avif. No. 27, 1944:50) report this species as a "sparse postbreeding vagrant from the south." The few records off California are from the southern sea coast. A record of a skull from the Marin County coast remains unconfirmed (Grinnell, Pac. Coast Avif. No. 11, 1915:176). On September 7, 1945, at 42° 29' N, 135° 05' W, approximately 460 nautical miles west of Cape Blanco, Oregon, a Red-billed Tropic-bird flew directly over the ship at approximately 200 feet elevation on a northerly course. It flew several hundred yards beyond the ship then turned and came back so that I was able to study it closely with 7×50 binoculars. The rapid flight of this bird was characterized by steady wingbeats without sailing or gliding.

*Anas acuta tzitsihoo*. Pintail. At 2:30 a.m. on August 30, 1945, a gentle rain started to fall. Our position was 43° 30' N, 135° 05' W at Area 4; ship "lying to." An occluded front was passing over us with the center of the low pressure area just off the coast of Vancouver Island, British Columbia. At 11:30 a.m. when I came out on the deck, much rain was falling with a 25-knot easterly wind. I was counting a flock of resting albatrosses which were nearly a fourth of a mile from the ship, when over 200 Pintail Ducks set their wings and circled over them; some ducks alighted, but most of the flock flew off in a southerly direction close to the ocean swells. A short while later several flocks of Pintails circled the ship many times before departing. Three Green-winged Teals were seen in one flock. The following log indicates some of the unusual bird activity which occurred that day:

1200—150 Pintails circling ship; departed on northerly course after being shot at by crew.

1235—Fifty Pintails flew southeast. Nine Pintails and one Green-winged Teal flew around the ship; acted as if they would alight; approached within 100 yards.

- 1300—Six unidentified ducks one-fourth mile west of ship.  
 1312—Two Parasitic Jaegers flew near ship. One Sabine Gull flew across our bow at 100 yards (adult plumage). Several (6) shearwaters in area. Two petrels seen far out.  
 1335—One Pintail alighted with the albatrosses 150 yards away from ship. Two unidentified terns flew by (200 yards). Many unidentified shorebirds are flying by the ship—some appear to be Western Sandpipers and one a Baird Sandpiper. The latter appears to be tired.  
 1345—Two flocks of Pintails (16 and 26) are flying around ship.  
 1400—One hundred and fifty Pintails off one-half mile south of ship.  
 1410—Pintail female shot down out of a flock of thirty which alighted near ship.  
 1510—The wounded duck has drifted back near the ship. There was no trace of food in crop or gizzard; bird was not fat but appeared to be in good health.  
 2100—Five Sabine Gulls flew over.

Over 300 Pintails were estimated to have been seen August 30. On August 31 only one Pintail, which rested near the ship with the albatrosses, was noted. The warm front had passed; there was no rain and only high scattered clouds remained. Except for a few Sabine Gulls, the Pintail, and small sandpipers, only the usual pelagic species were seen.

Observations of many unusual birds on August 30 and the days following were probably related to the cyclonic storm which may have blown migrating birds off their normal routes. There may be, however, many waterfowl that normally migrate over waters off our continental shores. Pintails winter in the Hawaiian Islands, so their presence may not have been unusual for that time of year. Others may normally migrate from the Aleutian Islands and even Alaska to California through these waters; however, I would expect them to fly much nearer the coast. Counter-clockwise air movement around the low pressure area could have blown them from the Alaskan and Canadian coastal regions.

*Anas carolinensis*. Green-winged Teal. Four were seen at Area 4, August 30 (see under Pintail).

*Pluvialis dominica*. Golden Plover. On October 15, 1944, a Golden Plover flew aboard the ship, which at that time was lying to 1000 miles southwest of San Francisco (140° W, 30° N). The bird remained on the deck for several hours before leaving.

*Erolia bairdii*. Baird Sandpiper. One of the small sandpipers seen at Area 4 appeared to be this species.

*Phalaropus fulicarius*. Red Phalarope. I noted this species on each voyage either in the vicinity of the Farallones or far at sea between the areas and San Francisco. Red Phalaropes frequented the vicinity of our ship when lying to at Area 4 on both trips; they were not seen, however, at the other areas but were seen when we were going to and from them. Usually only one, two or three individuals were seen at one time; on August 12, twelve phalaropes were counted dabbling for food in a floating mass of vegetative matter approximately sixty miles northwest of the Farallon Islands. On another occasion, July 27, as we were still 400 miles from San Francisco, several pairs of Red Phalaropes were seen feeding on the water or flying by. At night I have seen these birds fly about the masthead lights, apparently attracted by them.

*Catharacta skua*. Skua. On July 17, at Area 4, at 5:30 p.m. a Skua approached the ship and flew around for several minutes, then alighted near a group of Black-footed Albatrosses. The flight of this brownish sea bird, with noticeable white patches at the bases of its primaries, square tail, and somewhat rounded wing tips, resembled, to some extent, that of a buteonine hawk. This Skua was the only one seen.

Gabrielson and Jewett (Birds of Oregon, 1940) list no records of this species off the Oregon coast; Grinnell and Miller (*op. cit.*:160) list only a few from California. Others have been reported off Washington state (Alcorn, Condor, 44, 1942:218).

*Stercorarius pomarinus*. Pomarine Jaeger. Beck (Proc. Calif. Acad. Sci., ser. 4, 3, 1910:61) reports this species off "Point Pinos [Monterey County, California] in every month of the year." I did not see jaegers on my first two trips to sea (February 22 to March 19; April 8 to May 3). My sight records for this species are as follows: one remained about the ship for several hours at Area 1 on June 9; on July 27, on our way in from Area 3, I saw five in the vicinity of Area 1. Other unidentified jaegers were seen shoreward. At Area 4 on August 29, two flew over the ship; on August 31, one dark and one light-phased bird remained about the ship for a short time.

*Stercorarius parasiticus*. Parasitic Jaeger. *Parasiticus* is a common migrant off California in spring and autumn. Some of the unidentified jaegers seen between Area 1 and the Farallon Islands were probably this species. On July 17 one approached the ship at Area 4. From August 23 to September 12, I found the Parasitic Jaeger to be common at Area 4. Oftentimes jaegers could not be identified as to species due to the absence of elongated, central, tail feathers (immature birds); on other occasions I could not be certain if the bird in question was a Long-tailed or a Parasitic Jaeger, so that most of my sight records for *parasiticus* and *longicaudus* are questionable.

*Stercorarius longicaudus*. Long-tailed Jaeger. Gabrielson and Jewett (*op. cit.*:604) place this

Table 2  
Birds Noted on Trips Past the Farallon Islands in 1945

Trip Date	1 Feb. 22	2 Mar. 19	3 Apr. 8	4 May 3	5 May 22	6 June 17	7 July 5, p.m.	8 Aug. 1, a.m.	9 Aug. 21, p.m.	10 Sept. 15, early a.m.
Black-footed Albatross	1	1	3	3	2	2	1	---	3	1
Fulmar	---	---	---	---	---	---	---	---	7	12
Pink-footed Shearwater	---	---	---	---	---	50	25	---	---	---
Sooty Shearwater	25	25	---	---	25	Thousands	Hundreds	---	5	25
Fork-tailed Petrel	---	---	---	---	1	---	1	---	---	---
Leach Petrel	---	---	---	---	1	---	1	---	---	---
Ashy Petrel	---	1	---	---	1	1	1	---	---	---
Brown Pelican	---	2	---	---	1	---	---	---	1	4
Double-crested Cormorant	---	sev.	---	---	sev.	sev.	sev.	---	sev.	sev.
Pelagic Cormorant	---	sev.	---	---	sev.	sev.	sev.	---	sev.	sev.
Red Phalarope	---	2	---	---	---	2	---	---	12	---
Western Gull	few	few	few	few	few	many	few	many	few	many
Common Murre	---	few	---	---	---	few	60	---	1	2
Cassin Auklet	---	---	---	---	---	---	2	---	---	---
Tufted Puffin	---	2	---	---	---	2	8	---	1	---
Mourning Dove	---	---	---	---	---	---	---	---	---	1
Unidentified Warbler	---	---	---	---	---	---	---	---	---	1
Unidentified Sparrow	---	---	---	---	---	---	---	---	---	1

species on the hypothetical list for the state of Oregon; Grinnell and Miller (*op. cit.*:161) list ten definitely known occurrences for California. I saw two birds only which I felt certain were Long-tailed Jaegers on the basis of extreme length of central tail feathers. One approached our ship at Area 4 on July 17, and the other, accompanied by three Parasitic Jaegers (?), passed over the ship on September 11 at the same area.

*Larus argentatus*. Herring Gull. I saw Herring Gulls only at Areas 1 and 2 on my first two voyages to those locations. This species followed the ship off and on from the time we left the Farallon Islands until we arrived at the areas. From February 24 to March 19 at Area 2, adult and immature *argentatus* were near us at all times; the maximum number of individuals seen at one time was twenty-five. Between April 10 and May 1, only a few Herring Gulls were seen at Area 1; at times none would be present.

*Larus glaucescens*. Glaucous-winged Gull. Four immatures frequented the vicinity of our ship at Area 2 between February 11 and March 19. These birds, accompanied by Herring Gulls and the Black-footed Albatrosses, fed on the galley scraps.

*Rissa tridactyla*. Black-legged Kittiwake. Seen only at Areas 1 and 2; none was seen on the second trip to Area 2. A ship seems to offer no attraction for this species; all individuals passed by without so much as swinging near the ship.

*Xema sabini*. Sabine Gull. On two occasions these gulls were observed passing over us at Area 1 and 2. None was seen again until August 30, at Area 4, when five flew over. Throughout the latter part of August and the first part of September several remained in the vicinity of the ship. The largest number seen at one time was six.

*Zenaidura macroura*. Mourning Dove. On September 15, fifteen miles off the mainland between the Farallon Islands and the Golden Gate a Mourning Dove attempted to land on the ship. I last saw it going in a southerly direction paralleling the coast.

*Chordeiles minor*. Nighthawk. At 10:30 a.m. on September 1 at Area 4, lookouts discovered a Nighthawk on the bow of the ship. The bird after being molested flew within a few feet of me several times before it departed on a westerly course. The storm mentioned above (see under Pintail) may have blown this bird to sea.

Zoology Department, State College of Washington, Pullman, Washington, January 20, 1947.

## FROM FIELD AND STUDY

**Towhee Helps Cardinals Feed Their Fledglings.**—When two parent Cardinals (*Richmondia cardinalis*) guided their three fledglings to a tray of seeds on my window sill at Globe, Arizona, a male Brown Towhee (*Pipilo fuscus*), a companion resident, joined them in the shelling and feeding task. His smaller, conical bill was entirely satisfactory. If the fledglings were not at the tray, the towhee would seek them out in the near-by trees. The three adults worked together in complete harmony for about three weeks. The female cardinal was the first to end her care and later the towhee did so; the male cardinal continued to feed one retarded young for two more weeks.

It is significant that the begging young were not orphans or parasitic young and also that this male towhee had just completed a normal breeding cycle. He and his mate had reared two young in a nest on an ivy-covered trellis five feet from the window, and after hiding the fledglings in a near-by thicket for a few days, they coaxed them to the ledge for feedings. The family had scarcely disbanded when the cardinal family arrived. This male towhee had remained near the house all winter, often entering the doorway. A month after helping to feed the cardinals the towhees raised a second brood at another nesting site.—ADA ANTEVS, *The Corral, Globe, Arizona, July 7, 1947.*

**Black and Mottled Ducks in Colorado.**—As there has been considerable confusion regarding the occurrence of Black (*Anas rubripes*) and Mottled (*Anas fulvigula*) ducks in Colorado, I should like to list specimens which I have examined. Cooke in his second supplement to *The Birds of Colorado* referred the several early records to *Anas fulvigula maculosa*, but Felger (Auk, 27, 1910:451) considered Cooke in error and listed several additional specimens as *Anas rubripes*.

It is now evident that three species occur in the state. Unfortunately, the majority of specimens reported in the literature seem to have disappeared, but I have found seven skins available for study as follows:

Felger Coll.	<i>Anas rubripes</i> , Loveland, Larimer Co., November 13, 1904.
Colo. U. 2292	<i>Anas rubripes</i> , ♂, Windsor, Weld Co., December 9, 1923.
C. M. N. H. 24393	<i>Anas rubripes</i> , ♂, Jumbo Res., Sedgwick Co., December 9, 1944.
C. M. N. H. 353	<i>Anas fulvigula maculosa</i> , ♂, Loveland, Larimer Co., November 6, 1907.
C. M. N. H. 20557	<i>Anas diazi novimexicana</i> , ♀, Henderson, Adams Co., October 29, 1939.
C. M. N. H. 24392	<i>Anas diazi novimexicana</i> , ♂, Barr, Adams Co., November 19, 1944.
C. M. N. H. 25374	<i>Anas diazi novimexicana</i> , ♀, Jumbo Res., Sedgwick Co., March 4, 1947.

R. J. Niedrach and I took a female *novimexicana*, the first to be recorded from Colorado, from a flock of Mallards along the Platte River on October 29, 1939, while I was fortunate to take a second, a beautiful male, at the Mile High Duck Club, near Barr, on November 19, 1944. The third specimen for the state, a female, was taken by the game warden, G. I. Crawford, on Jumbo Reservoir, Sedgwick County, on March 4, 1947.

R. B. Rockwell and I saw a very dark "Mallard" at the Mile High Duck Club on February 9, 1937, which we believed was a high-plumaged male *Anas rubripes*, and Charles C. Sperry and Ralph H. Imler of the Fish and Wildlife Service trapped, banded and liberated a male *rubripes* at Valmont Reservoir, Boulder County, on January 2, 1946.—ALFRED M. BAILEY, *Colorado Museum of Natural History, Denver, Colorado, May 20, 1947.*

**Duck Hawk Predation upon Ring-necked Pheasants.**—Late on the afternoon of November 24, 1946, while returning from the Fern Ridge Reservoir area west of Eugene, Oregon, I had an opportunity to watch a Duck Hawk (*Falco peregrinus*) attack and apparently kill a Ring-necked Pheasant (*Phasianus colchicus*). When first seen, the falcon was flying low over an open field. It passed over six pheasants, without causing any excitement, to attack the seventh, a cock, on the edge of the flock.

In making the attack there was no hover, no stoop, and no indication of the coming strike. The falcon just glided along as if not interested in any of the birds and then suddenly struck. The pheasant was apparently stunned by the first blow. In quick succession the falcon hit three more times, each time bowling the pheasant over. The falcon then started to leave the scene, and the pheasant, recovering somewhat, jumped into the air and commenced flying off. Immediately the falcon turned and pursued the fleeing bird. The pheasant was then struck four more times while in the air, each time having its course altered, and on the last strike falling to the ground. Not yet crippled, the pheasant again rose to attempt escape and the falcon quickly turned and struck a ninth time. The pheasant fell limp to the ground, apparently dead.

Very shortly after the pheasant fell a large Red-tailed Hawk (*Buteo jamaicensis*) and a Marsh Hawk (*Circus cyaneus*) arrived on the scene. The Duck Hawk attacked the Red-tail twice, driving it and the Marsh Hawk from the scene, and then left itself. No attempt to feed on the fallen bird was made by any of the three raptors.

On different occasions other pheasants have been found dead in the same general area, presumably killed by the same bird. Never has evidence of feeding on the carcass been found. In all instances the birds were killed by breaking the spinal cord between the skull and the first vertebra.—GORDON W. GULLION, *Eugene, Oregon, April 10, 1947.*

**An Unrecorded Specimen of *Neochloe brevipennis*.**—When describing a new subspecies of *Neochloe brevipennis* from a male taken near Chilpancingo, Guerrero, Mexico, Miller and Ray (Condor, 46, 1944:41-45) listed every skin of this rare species of vireo known to have been collected in the period between 1856 and 1940, six in all. It may prove of interest therefore that the Zoological Museum of Berlin received in 1932 a beautiful specimen of this species, formerly mounted (Z. M. B. No. 32.25), which was collected at the Hacienda de Fuxpango, Orizaba, Vera Cruz, Mexico. Neither date nor collector is indicated on the label, which bears a mysterious original number (No. 275). Possibly the bird is one of Matteo Botteri's specimens of which only two could be traced by Miller and Ray. The wing measures 56.9 mm., the culmen about 9 mm.—ERWIN STRESEMANN, *Zoological Museum, Berlin, Germany, August 4, 1947.*

**The Black Vulture and the Caracara as Vegetarians.**—McIlhenny's note (Auk, 62, 1945: 136-137) on Black Vultures (*Coragyps atratus*) eating chopped sweet potatoes prompts me to report my observations on this bird in Surinam, Dutch Guiana. On the grounds of the Agricultural Experiment Station at Paramaribo I regularly observe Black Vultures feeding on the fruits of the African oil palm (*Elaeis guineensis*). The birds either sit in the trees and gnaw small bits from the fruits which they swallow, or they sit on the ground under the trees and feed on the fruits which have fallen down. Also the Black Vultures regularly feed on the flesh of coconuts. The most striking example of this I witnessed in July and September, 1946, in Coronie. This is a coconut growing district where in a factory at the Leasowes plantation oil is pressed mechanically from the coconut flesh. The nuts are opened by laborers, after which the flesh is removed and laid to dry either in the sun on stone floors or in rather primitive ovens fed by the bark of the nuts. After work ceases in the evening, the coconut flesh is removed from the stone floors and the workmen go home. At that time about 75 or more Black Vultures which have assembled in the meantime in the neighboring cocopalms glide down and start searching for the remnants of coconut flesh. According to the manager of the plantation this is a daily spectacle which he has witnessed for years.

At the same place two Caracaras (*Polyborus cheriway*) searched for and fed on the coconut flesh on one of the stone floors.—FR. HAVERSCHMIDT, *Paramaribo, Surinam, Dutch Guiana, January 27, 1947.*

**Zone-tailed Hawk Feeds on Rock Squirrel.**—Because of the paucity of records of both occurrence and food habits of the Zone-tailed Hawk (*Buteo albonotatus*), it may be of interest to report that on July 3, 1947, about 18 miles north of Globe, Arizona, on U. S. Highway 60, at approximately 5300 feet elevation, a Zone-tailed Hawk was observed on the highway struggling with a young rock squirrel which was perhaps three-quarters grown.

When first seen from an approaching automobile approximately 100 yards distant, the bird was dragging the squirrel which was struggling frantically to escape. The struggling squirrel was too heavy for the bird to carry off; consequently the hawk dragged it over the pavement for perhaps 50 feet. When our automobile was within 20 or 25 feet of the bird, it released its prey and flew off reluctantly. The bird seemed sluggish and slow in its movements.

At first glance from a distance, the bird appeared to be a Turkey Vulture. However, closer inspection clearly revealed that the bird was a Zone-tailed Hawk. The conspicuous tail bands and distinctive head and beak are unmistakable characteristics.

After leaving the fray, the bird circled overhead, remaining in the vicinity for about 15 minutes before leaving in search of other food.—CLARENCE COTTAM, *Fish and Wildlife Service, Chicago, Illinois, July 15, 1947.*

**Notes on the Occurrence of Birds in Lower California.**—On April 3, 1946, a Yellow-crowned Night Heron (*Nyctanassa violacea bancrofti*) was seen foraging along the shores of a small cove that lies on the southeast shore of San Martin Island, Lower California, Mexico. The bird remained in the vicinity of this small cove for two days and was taken there on April 6. The



contents of the stomach consisted of the remains of one striped shore crab, *Pachygrapsus crassipes*. According to Grinnell (Univ. Calif. Publ. Zool., 1928, 32:85) this heron is a "common resident, locally, in the southern part of the territory [of Lower California], chiefly or altogether south of latitude 28° 30'." San Martín is situated at latitude 30° 29', thus the known occurrence of this heron is extended northward nearly 140 miles. The bird was in juvenal plumage and thus should probably be considered as a wanderer out of its usual range.

The Parasitic Jaeger (*Stercorarius parasiticus*) is recorded as taken at two localities and seen at an additional three localities along the coast of Lower California. Grinnell (*op. cit.*:85) states that this jaeger is "very likely a regular migrant over the ocean along the Pacific side of the peninsula." My observations substantiate this statement. On April 17, 1946, a Parasitic Jaeger was observed while it tormented a Royal Tern (*Thalasseus maximus*) near Santo Domingo Point, latitude 28° 15'. The following day another jaeger was seen to press a prolonged attack on a Royal Tern. On April 19, in the course of the four-hour trip southward between Santo Domingo Point and the mouth of Scammon Lagoon, a distance of approximately twenty miles, twelve Parasitic Jaegers were counted. Their approach was always heralded by the harsh distress notes of the Royal Terns, which were constantly about. This distress call invariably commenced before we were able to see the jaegers. On several occasions two or three jaegers were visible at the same time. The jaegers for the most part moved past from south to north. In my experience this is an unusually large number of jaegers to encounter on a trip of this length. The Royal Terns, which were nesting in the near-by lagoons at the time, and which the jaegers spent most of their time harassing and plundering of their fish, may well have been the attraction which brought this concentration of jaegers to the area.

The Green-tailed Towhee (*Chlorura chlorura*) is typically found on wooded mountain sides and among the mesquites in the lowlands of the Cape district of Lower California in the winter. However, it appeared entirely out of place on a small sandy and windswept islet in Scammon's Lagoon. One Green-tailed Towhee lived a precarious existence on such an island near the camp of several Mexican fishermen. It picked up the bits of food and drank the water the fishermen offered it, becoming quite tame. The towhee was first observed in the area on April 20, 1946, and it was still there when I left on May 7. It sought shelter from the almost constant wind under the many carapaces of the green turtle (*Chelonia mydas*) which lay scattered about near the fishermen's camp. Although the salt marsh near-by supported a population of Savannah Sparrows (*Passerculus sandwichensis*), the towhee made no attempt to search for food in that area. Conversely the Marsh Sparrows infrequently entered the vicinity of the camp.

A list of the birds of Natividad Island, latitude 27° 53', published by Lamb (Condor, 29, 1931: 67-68) includes forty-nine species. Lamb was on the island between December 20, 1924, and January 13, 1925. On my visit to Natividad, from May 15 through May 17, 1946, I obtained specimens of two species which his list does not include.

House Finches (*Carpodacus mexicanus frontalis*) were found to be common on the cholla and brush-covered hillsides of the central part of the island. Mr. A. J. van Rossem, who kindly examined my specimens, informs me that he has two specimens of this species collected on Natividad in June of 1944 (letter, April 8, 1947). Mr. van Rossem's two males and the one which I collected all show extreme yellow coloration which appears to be a color condition occurring in birds of this species established in insular areas. This insular color phase of the specimens, together with the fact that the other four birds I collected there proved to be immature and that most of the twenty or more individuals that I saw were in small, apparently family groups, may indicate that this species has become established on Natividad since Lamb's visit. However, since Cedros Island is only ten miles to the north, where this race has long been known to occur, it is possible that their occurrence on Natividad is purely seasonal.

The Egret (*Casmerodius albus egretta*) is referred to by Grinnell (*op. cit.*:82) as "of sparse and sporadic occurrence, irrespective of season," in Lower California. An example of this species was given to me by Jose Perez, who is employed by the Mexican Government to protect the guano-producing cormorants of the island from human disturbance. Although untrained in the care of specimens, he had made a fairly good skin of the bird. No written data were kept. However, he said that since the species was so unusual on Natividad, he remembered clearly that he had taken it on August 6, 1945, when it had come to the island.—KARL W. KENYON, Mills College, Oakland, California, April 19, 1947.

**Concentrated Nesting of Marsh Hawks.**—In April of 1944 while making field observations of Clapper Rails near Seal Beach, California, I flushed five nesting pairs of Marsh Hawks (*Circus cyaneus*). Each nest contained five unmarked eggs and each was on the ground in matted salicornia. The male and female of each pair were in the vicinity, and although they protested vociferously at my intrusion, they seemed to ignore each other. The nesting area did not exceed five acres although there were many hundreds of acres of similar terrain adjacent to the five. I retreated several hundred feet from the

nesting area and soon all the females were back on the nests and the males were drifting off toward their hunting grounds.—EDWARD M. HALL, *Whittier, California, January 15, 1947.*

**Another Outbreak of Fungus Disease in Gulls.**—In the early part of January, 1947, John J. Barry and others of the field personnel of the California Division of Fish and Game reported deaths of gulls at Bixby Slough, Los Angeles County. Several of the dead birds, including Western Gulls (*Larus occidentalis*) and California Gulls (*Larus californicus*), were sent to us for examination. The lungs and air sacs of all birds examined in the laboratory were infected with a fungus, *Aspergillus* sp., the causative organism of mycotic pneumonia in birds.

In January as many as 500 gulls were observed on one day at Bixby Slough. Losses were first observed in the first week in January. On January 12 at least 100 birds were seen in a weakened condition. They made no attempt to fly when approached. In the course of the outbreak Barry counted 34 dead gulls and estimated that at least that many more were probably hidden in a dense tule growth. Both immature and adult birds were involved. A few of the birds showed evidence of being shot, but most of them had succumbed from the fungus infection. By January 28 the epizootic apparently had run its course since no further sick birds were observed.

In February, 1943, Herman and Bolander (Condor, 45, 1943:160-161) obtained a fungus-infected Glaucous-winged Gull from a pond in San Francisco. Mycotic pneumonia may be an important and widespread disease in gulls of the Pacific coast and the authors are desirous of obtaining further information on its incidence and distribution.—CARLTON M. HERMAN and MERTON N. ROSEN, *Bureau of Game Conservation, California Division of Fish and Game, Berkeley, California, June 14, 1947.*

**Water-surface Feeding of Blackbirds.**—Manzanita Lake on the campus of the University of Nevada has extensive growths of the water-weed *Anacharis canadensis*. Each year by the end of May the new growth of this plant forms a dense mat an inch or less below the water surface. For several years now both Red-winged (*Agelaius phoeniceus*) and Brewer (*Euphagus cyanocephalus*) blackbirds that nest in the vicinity of the lake have been observed feeding on insects associated with the waterweed. The blackbirds alight on the plants, the water usually coming to the middle or upper part of the birds' tarsometatarsi. Typically, the wings are then fluttered as the bird hops two or three feet to new vantage points. Less often a bird will walk, even a distance of thirty feet, without moving the wings. The tail, as appeared to be the habit in one individual especially, may be submerged and possibly pressed against the underwater vegetation for support.

The most readily visible food obtained, and certainly the major item for a period of weeks in the early summer, is recently emerged damselflies. The naiads of this insect crawl to the surface of the waterweed and metamorphose on projections just above the water. The blackbirds have been seen repeatedly catching these newly emerged and still pale and flightless adults. On the largest area of waterweed (approximately 30 by 80 feet) as many as five blackbirds at a time have been seen feeding. Most of the birds observed have been female Red-wings, although the males of both species have occasionally been seen similarly surface feeding. This seems largely explained by the constant feeding of the young, apparently chiefly by the females, in nests adjacent to the largest waterweed area.

Brewer Blackbirds of both sexes have been seen several times walking and feeding on pad-lily (*Nymphaea*) leaves, even one leaf serving to hold up a bird. On two occasions, once on the Truckee River and once on the Carson River, Brewer Blackbirds have been seen hovering over open water and snapping food from the surface. A male of this species was seen similarly to obtain a large piece of bread in Manzanita Lake and carry it to shore to be eaten.—FRANK RICHARDSON, *University of Nevada, Reno, Nevada, July 28, 1947.*

**The Black Phoebe in Western Oregon.**—At 11:15 a.m., on May 24, 1947, while on the South Santiam Highway, in Linn County, we saw a Black Phoebe (*Sayornis nigricans*) near Dobbin Creek. Dobbin Creek enters the South Santiam River from the south, a half mile east of the town of Cascadia, in the western foothills of the Cascade Mountains. The mountains are here forested principally with Douglas fir, but the immediate vicinity of the point of observation is a flat, open, and quite dry grassland bench above the south bank of the river.

The Black Phoebe is placed in the hypothetical list in Gabrielson and Jewett's Birds of Oregon (1940:605), in which they state: "It may possibly be taken in the State at some future date." This statement was later vindicated by Jewett (Condor, 44, 1942:37), in which he tells of a specimen taken by Mr. Overton Dowell at Mercer, in Lane County, on the Oregon coast, on June 1, 1936. The species occurs normally in northwestern California.—FRED G. EVENDEN, JR., PHILIP C. DUMAS, and KENNETH L. GORDON, *Department of Zoology, Oregon State College, Corvallis, Oregon, June 2, 1947.*

**The Vermilion Flycatcher in the Central Mohave Desert.**—Two miles above Camp Cady in eastern San Bernardino County water rises in the bed of the Mohave River and continues as a perennial stream until it reaches a point two miles below the old fort site. In the moist bottoms along this small meandering stream is a thick growth of honey mesquite, screw bean, large cottonwoods and tall-trunked willows. At the time of a recent visit (May 2, 1947) to the Camp Cady Ranch, which is situated in the midst of this desert verdure, I had opportunity to observe a small "colony" of Vermilion Flycatchers (*Pyrocephalus rubinus*). Mr. Lee Smith who resides at the ranch tells me that there are at least three pairs of these birds which to his knowledge have been nesting there for a number of years. Since Camp Cady is at least a hundred miles from known breeding habitats of this bird in the Colorado River bottoms and at the Salton Sea, Camp Cady marks the site of another of those interesting "island habitats" one sometimes finds in desert oases.—EDMUND C. JAEGER, *Riverside College, Riverside, California, May 15, 1947.*

**Yellow-billed Magpies' Reaction to Poison.**—In the summer of 1916 I witnessed an exhibition of intelligence by a colony of Yellow-billed Magpies (*Pica nuttallii*). These birds were numerous along the banks of the Merced River near its confluence with the San Joaquin River, California. The inhabitants of the ranch welcomed the presence of the native birds and for some time tolerated the depredations of the magpies in the melon patch and chicken pens. The birds pecked holes through the rinds of both ripe and immature melons, thereby destroying many more melons than they consumed. In the chicken pens they were observed in the act of breaking and eating eggs, and less frequently they were seen killing baby chicks. These also were eaten, or partly eaten before the old hens chased the intruders away.

Two or three birds were shot, but the chief effect of this measure was to make the rest of the colony extremely wary. They seemed to sense the presence of a gun and quietly flew out of range, setting up a chattering when they alighted as though to warn other birds of possible danger. Ambush was ineffective because it was too time-consuming, so the raiding of the garden and chicken pen continued, although at a reduced rate.

Finally one of the boys hit upon the idea of using poison to deplete the ranks of the magpies. A few grains of strychnine were inserted in the flesh of a piece of watermelon five or six centimeters square. The poisoned melon was tied on top of a post out of reach of stock and chickens. Within a few minutes a magpie flew to the perch, inspected the melon closely, and ate heartily for several minutes. It then stopped, shook its head vigorously, scratched at its beak, hopped agitatedly about on the post and adjacent wire, and flew to a near-by tree. There it chattered rapidly and began to hop and fly from branch to branch in a very excited manner. After a few minutes of violent activity it half fell, half flew to the ground, where it soon died, chattering intermittently between the violent convulsions.

No other bird approached the bait during the rest of the day. The following morning, however, another magpie alighted on a perch where a fresh bait had been displayed, ate heartily for a few minutes and repeated, in general, the actions of the bird poisoned the previous day. It was noted that during the chattering and violent activity of the stricken bird several other magpies watched intently but silently from the branches of the same and adjacent oak trees. When the dying bird fluttered about on the ground, chattering vigorously, the others suddenly took flight, protesting vociferously as long as they were within hearing.

From that day on throughout the summer not a magpie was seen to approach the garden, the chicken pen, nor the yard about the house. Neither did they return to those areas in the summer of 1917. It seemed as though the birds that had witnessed the deaths of the two victims had carried the word to other members of the colony. The birds continued to live on the ranch but so far as was observed in the two summers I lived in the vicinity, they did not approach nearer than about two hundred yards from the scene of their fellows' violent end. I have no information concerning their behavior in the summer of 1918 or in subsequent seasons, so I do not know how long the birds shunned the relatively small area made unattractive by the death of two of their number.—IRA L. WIGGINS, *Natural History Museum, Stanford University, California, July 22, 1947.*

## NOTES AND NEWS

Report of elections at the annual meeting of the American Ornithologists' Union held at Toronto, Canada, on September 8-12, 1947, is as follows: officers as before; new council members, A. H. Miller, H. L. Stoddard, and J. T. Emlen, Jr.; new fellows, O. S. Pettingill, Jr., H. B. Conover, F. H. Allen, J. W. Aldrich, and L. L. Snyder; new members, Mrs. Elsa G. Allen, Frank Bellrose, Jr., H. W. Brandt, C. H. D. Clarke, D. R. Griffin, C. R. Mason, B. L. Monroe, R. A. Moser, R. S. Palmer, H. S. Peters, R. H. Pough, G. B. Saunders, Gustav Swanson, J. T. Tanner and L. McI. Terrill. The 1948 meetings will be held in Omaha, Nebraska.

Harvey I. Fisher of the University of Hawaii and Frank Richardson of the University of Nevada have exchanged university appointments for the school year 1947-48. Fisher is now located at the University in Reno, Nevada.

## COOPER CLUB MEETINGS

## ANNUAL BUSINESS MEETING

President Howard Robertson called the business session to order at 10 a.m. on May 30, 1947, at the Los Angeles Museum, Exposition Park, Los Angeles, and appointed two committees as follows: proxy committee, Hildegard Howard, Alden H. Miller, Sherwin Wood; nominating committee for members of the board of directors, John Appleton, Luther Little, Kenneth Stager.

The meeting was then adjourned until the next day.

The second session on May 31, 1947, was called to order at 9:40 a.m.

Stating that the amending of the Articles of Incorporation at the Annual Meeting of 1946, in Berkeley, was not legal since written notice had not been previously posted, Mr. Howard Robertson declared that at a meeting of the Board of Directors on May 2, 1947, a new amendment was duly adopted and members notified that it would be brought before the members at the Annual Business Meeting of 1947 for ratification.

Before reading the amendment, Mr. Robertson asked for a report of the Proxy Committee to ascertain whether or not a quorum was present. Alden Miller reported that 581 members were represented in person or by proxy, out of a membership of 1155. The President declared a quorum existent.

The resolution was then read approving the action of the Board of Directors in amending Article V of the Articles of Incorporation of the Cooper Ornithological Club, to include among the stated members of the Board of Governors of

that Club "also such persons as will have served for one year or longer as President of the Northern Division and/or the Southern Division of this Corporation." A motion to adopt this resolution was made by Loye Miller, duly seconded and unanimously carried.

A further resolution was then read amending Article 3 of the By-Laws of the Corporation to include the same statement as to membership in the Board of Governors, and altering the statement regarding the required meetings of said Board. The section regarding the meeting of the Board is to be altered as follows (alteration consists in striking out a part of the former wording here shown in italics): "The Board of Governors may hold such meetings as it may determine, *provided that one meeting shall be held in Northern California each odd numbered year and one meeting shall be held in Southern California each even numbered year.*" Alden Miller moved that this resolution be adopted, Sherwin Wood seconded the motion and it was unanimously passed.

Luther Little then presented the recommendations of the nominating committee for membership in the Board of Directors. The list was as follows: C. V. Duff, W. I. Follett, Hildegard Howard, Jean M. Linsdale, Alden H. Miller, J. R. Pemberton, Howard Robertson, John McB. Robertson, A. J. van Rossem. Loye Miller moved that the nominees proposed by the committee be elected and that appreciation be extended to the previous Board members for their services. The motion was seconded and carried.

Mr. Duff reported on a study made to provide a means whereby members could give more money to the Club. The following changes in memberships were suggested: addition of a sustaining membership at \$5.00 per year, and of a patron's membership for a \$500 donation; raising the amount for a life membership from \$75 to \$100, effective January, 1948. After some discussion, the matter was put in the form of a motion: "To instruct the Board of Directors to take such action as will result in an amendment to the Articles of Incorporation and the By-Laws so as to increase the life membership to \$100, as of January 1, 1948, and to add to the classes of membership, patron and sustaining members." The motion was seconded and carried.

As the Southern Division was adjourned for the summer, the secretary of that Division, Miss Groner, read the following list of names proposed for membership: Henry Lewis Batts, Jr., 4930 Washtenaw Rd., Ypsilanti, Mich., H. Storrs Brig-

ham, Jr., 3817 Sedgwick Ave., New York 63, N.Y., Lawrence Howard Cloyd, Box 392, State Game Refuge, Gridley, Calif., Fred S. Dunn, 115 E. 61st St., New York, N.Y., Val H. Francis, State Game Farm, Chino, Calif., Daniel J. Gan, Camrose, Alberta, Canada, Mrs. John N. Hough, 570 Highland Ave., Boulder, Colo., E. Charles D. Marriage, care of State Library, Carson City, Nev., Wilbur Brooks Quay, Kinsman Rd., R.F.D. No. 3, Chagrin Falls, Ohio, Robert Willoughby Rand, care of Union Government Guano Islands, 32 Riebeck Str., Cape Town, South Africa, Duncan H. Read, Middleburg, Va., Frederic Robert Scott, 4600 Coventry Rd., Richmond 21, Va., Clyde Lloyd Stensrud, Route 1, Box 57, Atchison, Kansas, Howard Twining, 1412 Salem St., Chico, Calif., James Henry Veghte, 211 S. William St., Johnstown, N.Y., Wallace Alfred Welshans, Rosedale, Miss., Theodore G. Wilder, 125 Oxford Rd., Waukesha, Wis., and James A. Young, 1106 Park Ave., Alameda, Calif., all by C. V. Duff; Caroline H. Daugherty, 941 Sherlock Dr., Burbank, Calif., by Dorothy E. Groner; Maurice Hinshaw, Refuge Manager, Willapa National Wildlife Refuge, Ilwaco, Wash., by Stanley G. Jewett; Arnold Lane, 2005 Hickory St., Santa Ana, Calif., by Marjorie Moody; R. Bruce Maclean, 2149 Panorama Terrace, Los Angeles 26, Calif., by Hildegard Howard; Richard Douglas Taber, Apt. 257, Badger, Wis., by Alden H. Miller; and Ralph A. Woolsey, 20158 Observation Dr., Topanga, Calif., by W. Lee Chambers.—HILDEGARDE HOWARD, *Secretary*.

## GOVERNORS' MEETING

The 22nd annual meeting of the Board of Governors of the Cooper Ornithological Club was held on May 30, 1947, at the University Club, 614 South Hope Street, Los Angeles, California. President Alden H. Miller called the meeting to order at 8:00 p.m. with the following members present: J. S. Appleton, W. W. Bennett, C. V. Duff, Dorothy E. Groner, Hildegard Howard, Eric C. Kinsey, J. M. Linsdale, Luther Little, A. H. Miller, I. D. Nokes, Harry R. Painton, J. R. Pemberton, S. B. Peyton, F. A. Pitelka, Howard Robertson, C. G. Sibley, K. E. Stager, A. J. van Rossem, and S. F. Wood. Guests present at the meeting were A. E. Colburn, Wilson C. Hanna, R. B. Moran, and Otto J. Zahn. Proxies were present as follows: H. C. Bryant, W. K. Fisher, D. E. Groner, E. N. Harrison, L. Miller, J. McB. Robertson, A. L. Sumner, J. G. Tyler, and S. F. Wood, held by Alden H. Miller; J. S. Appleton, J. T. Emlen, H. Michener, A. H. Miller, and H. Robertson, held by F. A. Pitelka; L. B. Bishop, H. W. Carriger, R. T. Moore, and T. I. Storer, held by W. L. Chambers, who was absent; H. Howard, held by K. E. Stager.

Minutes of the 21st annual meeting were read and approved. The report of the Treasurer was

submitted jointly by W. Lee Chambers and John McB. Robertson. Two members of the Auditing Committee, Howard Robertson and W. W. Bennett, reported informally that the Treasurer's report was in good order. On motion of S. F. Wood, the reports of the Treasurer and Auditing Committee were accepted.

The editors of the *Condor* submitted a report in three parts: J. M. Linsdale reviewed the history of the Pacific Coast Avifauna series. He suggested that the series be given more publicity and that additions to the series be sought more actively. Suggestions as to possible topics included intensive studies of local avifaunas, extensive accounts of single species, and a history of the Cooper Ornithological Club. A. H. Miller reported on the past year's experience with *The Condor*: More manuscripts were submitted (99 published articles and notes in 1946 versus 79 in 1945); a greater total of pages was printed (299 in 1946 versus 280 in 1945), and costs of printing increased about 30 per cent. F. A. Pitelka described a plan for the publication of a series of paintings and sketches by the late Allan Brooks. On the motion of C. V. Duff, seconded by Hildegard Howard, the report of the editors and their suggestions were accepted.

On the motion of C. V. Duff, President Miller appointed I. D. Nokes and J. R. Pemberton to locate plates used in publication of Dawson's "Birds of California" and to explore the possibility of republishing them.

Report of the Membership Committee was presented by C. V. Duff. The following classes of members were proposed: regular members, sustaining members, life members, patrons, and honorary members. After some discussion, it was pointed out by Howard Robertson that the proposal must come before a business meeting of the Club at which a quorum of members was present.

Harry R. Painton suggested that all gifts to funds of the Cooper Ornithological Club be acknowledged in writing.

Howard Robertson reported on a form of bequest prepared by W. I. Follett. The form was read and offered as one suitable for use by members and friends of the Club. It was suggested that copies be distributed by mail to members. On the motion of Eric C. Kinsey, this report and accompanying suggestions were accepted.

On the motion of Howard Robertson, seconded by Sidney B. Peyton, the incumbent editor and associate editors were re-elected. Incumbent officers of the Board were re-elected: A. H. Miller, President, Ed N. Harrison, Vice-president, and Frank Pitelka, Secretary.

On motion of J. M. Linsdale, an expression of appreciation and thanks was extended to the Southern Division by representatives of the

Northern Division present for arrangements of the program of the Annual Meeting.

It was moved by Howard Robertson, seconded by Hildegard Howard, that the next meeting of the Board of Governors be held in Berkeley, at a date to be designated by the president of the Board.—FRANK A. PITELKA, *Secretary*.

#### NORTHERN DIVISION

JUNE.—The monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, June 26, 1947, in Room 2503, Life Sciences Building, University of California, Berkeley; 17 members and guests were present. Proposals for membership were read as follows: Robert Edward Lamb, 417 Jackson Street, Sterling, Colo., by Alden H. Miller; Carl Nichols, R.F.D. Box 713, Garden Grove, Calif., by Charles G. Sibley; Howe Elliott McClure, Box 292, Station A, Bakersfield, Calif., by Frank A. Pitelka; Philip Gilhousen, 2560 Hilgard Avenue, Berkeley 9, Calif., and Harry McAndrew, Oxford Hall, 2140 Oxford Street, Berkeley, Calif., by Susan E. Chattin.

The speaker of the evening, Mr. William M. Pursell, told informally of his experiences in bird observation about Berkeley and of his nature

work with boy scouts in the past 20 years.—LOIS C. TAYLOR, *Acting Secretary*.

#### SOUTHERN DIVISION

APRIL.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the University of Southern California, Los Angeles, on April 29, 1947; 75 members and guests were present. The following names were proposed for membership: Garrett Eddy, 4515 Ruffner St., Seattle 99, Wash., by Alden H. Miller; H. V. Johnson, 972 W. Broadway, Eugene, Ore., Dan Dion, 1060 Tyler St., Eugene, Ore., and Ben Pruitt, Thurston, Ore., by Gordon W. Gullion; Robert H. Fladeland, 1450 Indian Hill, Claremont, Calif., and Goode P. Davis, Jr., 90 Tollis Ave., Montecito, Santa Barbara, Calif., by Kenneth E. Stager; Arthur B. Mickeg, 1516 Rainbow Ave., Laramie, Wyo., and Elmer Charles Hanson, 1305 Wisconsin Ave., Racine, Wisc., by John McB. Robertson; Warren M. Petterson, Kwigillingok, via Bethel, Alaska, by Harold M. Michener; and Mrs. Helen G. Roberts, 4413 Clarissa Ave., Hollywood 27, Calif., by C. V. Duff.

Kenneth E. Stager presented an account of his recent collecting trip into the foothills of Sinaloa, Mexico.—DOROTHY E. GRONER, *Secretary*.

*For Sale, Exchange and Want Column.*—Each Cooper Club member is entitled to one advertising notice in any issue of *The Condor* free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address JOHN MCB. ROBERTSON, Buena Park, California.

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FOR SALE—The *Condor*, 1915 and 1916, complete; 1917, all but Nov.-Dec. issue; 1918 and 1919, complete; 1920, Jan.-Feb. only; 1924, complete and five issues without covers; 1932 through 1938, complete, all in good condition.—GEORGE MIESCH SUTTON, *Museum of Zoology, University of Michigan, Ann Arbor, Michigan.*

WANTED—Animal Life in the Yosemite, by Grinnell and Storer; also unbound sheets from *The Birds of California*, by Dawson.—HENRY E. CHILDS, JR., 441 *Boynton Ave., Berkeley, Calif.*

FOR EXCHANGE—Complete file of *Nidologist*, Vol. 1, No. 1 (Sept., 1893) through Vol. 4, No. 9 (May, 1897), in perfect condition. I want Roberts' *Birds of Minnesota* and Grinnell and Storer's *Furbearing Animals of California*.—JACOB B. ABBOTT, *Whitehall, Haverford, Pa.*

FOR SALE—Complete set of *The Auk*, 52 volumes, 1884 to 1936, first fourteen volumes bound, the others unbound but in perfect condition.—MRS. FREDERICK HALL FOWLER, 360 *Forest Ave., Palo Alto, California.*

FOR SALE—Complete set of *The Auk*, first 26 years bound, with five bound indices, \$300, prepaid. Complete set of *The Condor*, \$60, prepaid. For those who have incomplete sets of *The Auk*, I have lots of odd issues and volumes.—F. M. DILLE, 822 *Grand Ave., Nogales, Arizona.*



## PREPARATION OF MANUSCRIPTS FOR THE CONDOR

Articles published in the Condor normally are written by members of the Cooper Ornithological Club. Practically all the Club's money goes into the magazine; no editor and no business manager receive any pay other than the satisfaction of doing a service worthily. The preparation of good copy by the author will contribute greatly to accuracy of published output, dispatch in handling, and economy of production.

To be acceptable for inclusion in the Condor, articles must not duplicate in any substantial way material that is published elsewhere. Any type of subject bearing on birds may be considered; but the geographic areas of primary concern are western North America, Central America, and the Pacific Basin. Manuscripts may be submitted to any one of the editors (see inside front cover for address). Proofs with edited manuscripts will be sent to authors, at which time reprints may be ordered.

In the interests of accuracy and economy, observe the following: do not duplicate data in text, tables, or charts; check citations to original sources and verify text references; quoted statements must be exact replicas of the original; preferably use vernacular names applicable to the entire avian species (for a guide in this regard, see "The Distribution of the Birds of California," *Pac. Coast Avif.* No. 27, 1944:5-34); in general, avoid subspecific vernaculars; insert scientific names for species but not the subspecific name except in taxonomic papers or where the race concerned has been critically determined by the author or his collaborators; revise the manuscript repeatedly to remove superfluous words and phrases, immaterial detail, and repetitious statements.

Note Condor style and usage. "General Articles" and the "Field and Study" items are set up in different form. Provide a concise, meaningful title, and, where needed, subtitles within the text. Footnotes are not used. The address line may serve to indicate institutional connection, and to it should be added the date of transmittal of the manuscript. Terminal bibliographies are desirable where five or more titles are to be cited; otherwise, the references may be included in the text. For bibliographic style, note closely the practices employed in recent volumes of the journal. A factual summary is recommended for longer papers.

Rules for copy.—(1) typewrite material, using one side of paper only; (2) double space *all* material and leave liberal margins; (3) use  $8\frac{1}{2} \times 11$  inch paper of standard weight (avoid onion skin); (4) carbon copies are not acceptable; (5) place tables on separate pages; (6) number pages in upper right hand corner.

Illustrations.—Photographs should be glossy prints of good contrast. Make line drawings with India ink; plan linework and lettering for at least  $\frac{1}{2}$  reduction; do not use typewritten labels on the face of the drawing. Provide typed legends on separate sheets.

Helpful references on writing: *Manual of Style*, University of Chicago Press, and *Rules of the Editorial Committee*, University of California Press. On scientific nomenclature: A.O.U. Check-list (with supplements 19, 20, 21 and 22) and *Pacific Coast Avifauna* No. 27; authors are not required to follow either of these works.

THE EDITORS OF THE CONDOR.

